MODULAR *Facing tile* HANDBOOK

LOUIS & HENRY, Architects
Starks Bldg.
Louisville, Ky.

This copy of the

MODULAR FACING TILE HAND BOOK

Illustrates and describes shapes, construction methods, guarantees and specifications under which all Natco Modular Facing Tile is manufactured and sold.

On pages 91 to 94 inclusive other Natco Clay Products are featured.

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A.I.A. 10

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MODULAR FACING TILE HANDBOOK

Published by the

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FOREWORD

This handbook, illustrating the modular sizes of glazed and unglazed facing tile, suggested assembly details and layout procedures, constitutes the Facing Tile Institute's presentation to the architectural profession of Modular Facing Tile. It is the culmination of intensive study resulting from the progressive action taken by the structural clay products industry in cooperation with other branches of the building industry in the now well-known American Standards Association Project A62 for the Coordination of Dimensions of Building Materials and Equipment.

Organized under the sectional committee procedure of the American Standards Association in 1939, Project A62 represents an industry-wide, cooperative effort to reduce building costs and improve quality in materials and construction. Appropriately, both the American Institute of Architects and the Producers' Council, Inc., sponsor the project, for it is recognized that dimensional coordination involves not only the sizes of building products, but also building details and dimensions.

Through the collaboration of technical experts of the building industry, the three-dimensional grid, uniformly spaced on the 4-inch module, was tested and found to provide a practical basis for modular coordination. In 1945 this grid was approved by the American Standards Association as the American Standard Basis for the Coordination of Dimensions of Building Materials and Equipment, A62.1-1945. Also approved in that year was the American Standard Basis for the Coordination of Masonry, A62.2-1945. Together, these two basic standards provide the foundation for the development of standard dimensions for building products, which will be established by supplementary standards.

The first of these standards to be adopted was the American Standard Sizes for Clay and Concrete Modular Masonry Units, A62.3-1946. Thus, masonry has assumed a leading role in this vitally important work.

The fact that standard modular masonry sizes now include brick, structural clay tile, and concrete masonry, as well as Structural Facing Tile, is of especial significance to the Facing Tile Industry. All types of masonry units employed in wall constructions are thus coordinated. With modular sizes for windows and doors in production, the elimination of needless waste and much expensive field cutting and fitting is no longer only a desirable goal but an actual accomplishment.

The contents of this handbook are presented in three parts: Part I includes specifications for Ceramic Color Glazed, Clear Glazed, Salt Glazed and Smooth Unglazed structural facing tile, together with tables listing the colors in which these products are available and fire resistive ratings of various facing tile wall assemblies. Part II contains illustrations of the various sizes and shapes, and Part III presents suggested assembly details and layout procedures for use with modular facing tile.

The Facing Tile Institute gratefully acknowledges the assistance of the Modular Service Association in the development of the material included in Part III and expresses its appreciation of the excellent work of the MSA staff which prepared the original drawings for this section.

Part I

Specifications and Methods of Test

PRODUCTS AND GUARANTEE *of the* FACING TILE INSTITUTE

ORGANIZATION

The Facing Tile Institute comprises the leading manufacturers of structural glazed and unglazed facing tile. This organization is not entirely new, but is in reality an enlargement of the Glazed Brick and Tile Institute, that dependable organization of service and quality so well known to the architectural profession and to the other users of high grade building materials. In order to increase its policy of progress, coordination and simplification, and to further its aim of constant improvement, the Glazed Brick and Tile Institute augmented its scope of service by including the leading producers of unglazed facing tile made from a light burning de-aired clay. New in name, but old in tradition, and ever mindful of its prestige and responsibilities, the Facing Tile Institute presents a wider scope of products and offers its increased services to the professions of the building industry.

PRODUCTS

The products of the members of the Facing Tile Institute include all of the varied shapes and sizes, together with the necessary and supplementary shapes, in a variety of colors and with finishes of ceramic glaze, salt glaze, clear glaze or unglazed, all produced from light burning de-aired clay. Years of experience have proved that this type of clay provides the best body for superior glazed or unglazed facing tile. To obtain a grade of ware meeting the Facing Tile Institute Specifications, the architect should always include the stipulation "produced from a light burning de-aired clay."

Servicing jobs is a primary requisite of each Facing Tile Institute member, and all members must have proved to be fully capable of serving jobs of any size with the required quality, and strictly in accordance with the Institute's specifications for the type of ware desired. Each member manufacturer is an established producer with experience in every type of job involving facing tile.

STANDARDIZED SIZES AND QUALITY

Standardized sizes and quality have been achieved through the Institute's organized effort in cooperation with leading architects, universities and Government agencies. The coordination and standardization have greatly reduced the number of sizes and shapes without in any way restricting the full expression of the designer's artistic ideas. This program of simplification is of invaluable aid to the architect in design, and is of equal importance to the contractor. Further improvement in quality and shapes is consistently being sought through the Institute's continuous research program. With a superior product assured by the quality standards set forth in the Institute's specifications, architects may be assured of receiving on the job the best produced in glazed or unglazed facing tile by specifying the products produced by members of the Facing Tile Institute.

GUARANTEE

Each member of the Facing Tile Institute guarantees that any ware manufactured by him will conform to the quality standards, tolerances and grading rules established by the Institute. If it can be established within reasonable time, but in no event longer than one year, that any material does not conform to these standards, the manufacturer will replace defective units. The measure of damage after ware has been installed will be the replacement of defective units without charge at the factory, but no charge for labor or other expenses required to repair defective ware or damage occasioned by it will be allowed. This guarantee is expressly in lieu of all other guarantees and warranties expressed or implied and of all other obligations or liability on the manufacturer's part, and the manufacturer neither assumes nor authorizes any other person to assume for him any other liability in connection with the sale of his ware.

In no event will replacement of Off-Grades be made after installation. No replacement will be made of ware chipped on job or after installation.

specifications

FOR CERAMIC COLOR GLAZE STRUCTURAL FACING TILE

1. Workmanship

The body of all units shall be of clear burning, deaired fire clay burned as straight and true as careful manufacture can produce. The finished face or faces of all units that will be exposed when in place shall be covered with a ceramic colored glaze, compounded of metallic oxides, chemicals and clays thoroughly ground together and sprayed upon a previously formed body. The units shall then be burned at high temperatures, fusing the glaze to the body, making them inseparable.

2. Sizes and Shapes

The face sizes of ceramic glazed units shall be (see pages 13 to 34 for standard sizes), and such other sizes as are published in the 1947 edition of the Facing Tile Institute's catalog as fittings therefor.

3. Unit Design

All ceramic glazed units shall conform to the requirements of sections 1 to 5, inclusive, of the Physical Requirements of the Facing Tile Institute, as to number of cells, shell and web thickness, scoring and coring.

4. Select Quality

(a) Dimension and Distortion Tolerances — Select Quality, ceramic glazed units are intended for use with ¼ inch mortar joints and shall conform to the requirements of column 2 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

Select Quality, "8W" Series (7¾" x 15¾" face size) are furnished ground edge only. Select Quality, ground edge units shall conform to the requirements of column 1 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

(b) Finish — The glaze shall be free from chips, crazes, blisters, crawling or other imperfections detracting from the appearance of the finished wall when viewed at a distance of 5 feet.

(c) Color and Texture — The textures shall be mottled, stippled and smooth, and the color of the finished surface shall conform to approved samples consisting of 5 stretcher units fully representing the range of shade and texture. For colors see page 10.

(d) Tests of Finish — Unit faces shall pass the standard tests of the Facing Tile Institute or of the American Society for Testing Materials for Imperviousness, Chemical Resistance of Finish, and Resistance to Crazing (Autoclave Test).

(e) Physical Properties — Units shall conform to the requirements of column 2 of table 7 of the Grading Rules of the Facing Tile Institute.

5. B Quality

(a) Dimension and Distortion Tolerances — B Quality, ceramic glazed units shall conform to the requirements of column 4 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

(b) Finish — The glaze shall be free from large chips, crazes or blisters, but this quality may contain units having small chips and slight mechanical or glaze imperfections.

(c) Color and Texture — The textures shall be mottled, stippled, and smooth, and the color of the finished surface shall be indicated by a sample consisting of 5 stretcher units. However, the shade range in the B Quality may be wider than the range represented by the sample. For colors see page 10.

(d) Tests of Finish — Many of the units furnished as B Quality will pass the tests for finish required of Select Quality. However, failure to pass these tests cannot be cause for rejection as all units may not meet the test requirements.

6. Supplementary Requirements

(a) Opaque Glazes — Where opacity of finish is desired, and opaque glazes are specified, they shall not show the color of the body, nor visible stain from the opacity test.

(b) Absorption — When units intended for use where exposed to frost action are required and so specified, they shall conform to the requirements of columns 1 and 2 of table 6 of the Grading Rules of the Facing Tile Institute.

FOR CLEAR GLAZE STRUCTURAL FACING TILE

1. Workmanship

The body of all units shall be of clear burning, deaired fire clay burned as straight and true as careful manufacture can produce. The finished face or faces of all units that will be exposed when in place shall be covered with a translucent or tinted glaze having a lustrous finish, compounded of metallic oxides, chemicals and clays thoroughly ground together and sprayed upon a previously formed body. The units shall then be burned at high temperatures, fusing the glaze to the body, making them inseparable.

2. Sizes and Shapes

The face sizes of clear glazed units shall be (see pages 13 to 34 for standard sizes), and such other sizes as are published in the 1947 edition of the Facing Tile Institute's catalog as fittings therefor.

3. Unit Design

All clear glazed units shall conform to the requirements of sections 1 to 5, inclusive, of the Physical Requirements of the Facing Tile Institute, as to number of cells, shell and web thickness, scoring and coring.

4. Select Quality

(a) Dimension and Distortion Tolerances—Select Quality, clear glazed units are intended for use with ¼ inch mortar joints and shall conform to the requirements of column 2 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

(b) Finish—The glaze shall be free from chips, crazes, blisters, crawling or other imperfections detracting from the appearance of the finished wall when viewed at a distance of 5 feet.

(c) Color and Texture—The texture shall be smooth and the color of the finished surface shall conform to an approved sample consisting of 5 stretcher units fully representing the range of shade. For colors see page 10.

(d) Tests of Finish—Unit faces shall pass the standard tests of the Facing Tile Institute or of the American Society for Testing Materials for Imperviousness, Chemical Resistance of Finish, and Resistance to Crazing (Autoclave Test).

(e) Physical Properties—Units shall conform to the requirements of column 2 of tables 6 and 7 of Grading Rules of the Facing Tile Institute.

5. Standard Quality

(a) Dimensions and Distortion Tolerances—Standard Quality, clear glazed units are intended for use with ¼ inch mortar joints and shall conform to the requirements of column 2 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute as to 80 per cent thereof and to the requirements of column 3 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute as to the remainder.

(b) Finish—The glaze shall be free from chips, crazes, blisters, crawling or other imperfections detracting from the appearance of the finished wall when viewed at a distance of 5 feet except that not more than 20 per cent of the units may have slight mechanical or glaze imperfections and small chips.

(c) Color and Texture—The texture shall be smooth and the color of the finished surface shall conform to an approved sample consisting of 5 stretcher units fully representing the range of shade. For colors see page 10.

(d) Tests of Finish—Unit faces shall pass the standard tests of the Facing Tile Institute or of the American Society for Testing Materials for Imperviousness, Chemical Resistance of Finish, and Resistance to Crazing (Autoclave Test).

(e) Physical Properties—Units shall conform to the requirements of column 2 of tables 6 and 7 of the Grading Rules of the Facing Tile Institute.

FOR SALT GLAZE STRUCTURAL FACING TILE

1. Workmanship

The body of all units shall be of clear burning, de-aired fire clay, burned as straight and true as careful manufacture can produce. The finished face or faces of all units that will be exposed when in place shall be covered with a glaze having a lustrous finish produced by salt and chemicals applied to a previously formed body as a vapor during burning and matured and fused to the body at high temperatures.

2. Sizes and Shapes

The face sizes of salt glazed units shall be (see pages 13 to 30 for standard sizes), and such other sizes as are published in the 1947 edition of the Facing Tile Institute's catalog as fittings therefor.

3. Unit Design

All salt glazed units shall conform to the requirements of sections 1 to 5, inclusive, of the Physical Requirements of the Facing Tile Institute, as to number of cells, shell and web thickness, scoring and coring.

4. Select Quality

(a) Dimension and Distortion Tolerances—Select Quality, salt glazed units are intended for use with ¼ inch mortar joints and shall conform to the requirements of column 2 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

(b) Finish—The glaze shall be free from chips, blisters, cracks, or other imperfections detracting from the appearance of the finished wall when viewed at a distance of 5 feet.

(c) Color and Texture—The texture shall be smooth and the color (reflecting the color of the clay body) shall conform to an approved sample, consisting of 5 stretcher units, fully representing the range of shade. No trim shades are made in this type. For colors see page 10.

(d) Tests of Finish—Unit faces shall be image reflecting, resistant to pencil or crayon markings, and shall be easily cleaned by washing with soap and water.

(e) Physical Requirements—Units shall conform to the requirements of column 2 of Table 7 of the Grading Rules of the Facing Tile Institute. Salt glazed facing tile are not recommended for exterior use.

5. Standard Quality

(a) Dimension and Distortion Tolerances—Standard Quality, salt glazed units are intended for use with ¼ inch to ⅜ inch mortar joints and shall conform to the requirements of column 2 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute as to 70 per cent thereof, and to the requirements of column 3 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute as to the remainder.

(b) Finish—The glaze shall be free from blisters, cracks or other imperfections detracting from the appearance of the finished wall when viewed at a distance of 5 feet, except that not more than 30 per cent of the units may have slight mechanical and glaze imperfections and small chips.

(c) Color and Texture—The texture shall be smooth and the color range (wider than furnished in Select Quality) shall conform to an approved sample consisting of 5 stretcher units, fully representing the range of shade. For colors see page 10.

(d) Tests of Finish—Unit faces shall be image reflecting, resistant to pencil or crayon markings, and shall be easily cleaned by washing with soap and water.

(e) Physical Requirements—Units shall conform to the requirements of column 2 of table 7 of the Grading Rules of the Facing Tile Institute. Salt glazed facing tile are not recommended for exterior use.

FOR SMOOTH UNGLAZED STRUCTURAL FACING TILE

Gray—Cream—Buff—Manganese and Iron Spot

1. Workmanship

The body of all units shall be of light burning, de-aired clay, burned as straight and true as careful manufacture can produce. The finished face or faces of all units that will be exposed when in place shall be unglazed with smooth finish and shall be hard burned to produce clear faces and semi-vitreous bodies.

specifications

2. Sizes and Shapes

The face sizes of unglazed units shall be (see pages 14 to 30 for standard sizes), and such other sizes as are published in the 1947 edition of the Facing Tile Institute's catalog as fittings therefor.

3. Unit Design

All unglazed units shall conform to the requirements of sections 1 to 5 of the Physical Requirements of the Facing Tile Institute, as to number of cells, shell and web thickness, scoring and coring.

4. Select Quality

(a) Dimension and Distortion Tolerances—Select Quality, unglazed units are intended for use in the same wall with glazed units with ¼ inch mortar joints, and shall conform to the requirements of column 2 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

(b) Finish—The finished face or faces that will be exposed when in place shall be free from chips in excess of those permitted by column 2, table 5 of the Grading Rules of the Facing Tile Institute and shall be free from other imperfections detracting from the appearance of the finished wall when viewed at a distance of 10 feet.

(c) Color and Texture—The texture shall be smooth and the color of the finished face or faces shall conform to an approved sample consisting of 5 stretcher units fully representing the range of shade. For colors see page 10.

(d) Tests of Finish—Units shall be low in absorption and the faces shall be smooth, highly resistant to staining and easily cleaned.

(e) Physical Properties—Units shall conform to the requirements of column 2 of tables 6 and 7 of the Grading Rules of the Facing Tile Institute.

5. Standard Quality

(a) Dimension and Distortion Tolerances—Standard Quality unglazed units are intended for use with ⅜ inch mortar joints and shall conform to the requirements of column 3 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

(b) Finish—The finished face or faces that will be exposed when in place shall be free from chips in excess of those permitted by column 3, table 5, of the Grading Rules of the Facing Tile Institute and shall be free from other imperfections detracting from the appearance of the finished wall when viewed at a distance of 10 feet.

(c) Color and Texture—The texture shall be smooth and the color of the finished face or faces shall conform to an approved sample consisting of 5 stretcher units fully representing the range of shade. For colors see page 10.

(d) Tests of Finish—Units shall be low in absorption and the faces shall be smooth, highly resistant to staining and easily cleaned.

(e) Physical Properties—Units shall conform to the requirements of column 3 of tables 6 and 7 of the Grading Rules of the Facing Tile Institute.

6. Industrial Quality

(a) Dimension and Distortion Tolerances—Industrial Quality unglazed units are intended for use with ⅜ inch to ½ inch mortar joints and shall conform to the requirements of column 4 of tables 1 to 4, inclusive, of the Grading Rules of the Facing Tile Institute.

(b) Finish—The finished face or faces that will be exposed when in place shall be free from chips in excess of those permitted by column 4, table 5 of the Grading Rules of the Facing Tile Institute but some units may have slight mechanical and face imperfections.

(c) Color and Texture—The texture shall be smooth and the color of the finished face or faces shall be indicated by an approved sample consisting of 5 stretcher units. However, the shade range in the Industrial Quality will be wider than the range represented by the sample. For colors see page 10.

(d) Tests of Finish—Units shall be of medium absorption and the faces may not be as resistant to staining as Select and Standard Qualities.

(e) Physical Properties—Units shall conform to the requirements of column 4 of tables 6 and 7 of the Grading Rules of the Facing Tile Institute.

FOR OFF-QUALITY STRUCTURAL FACING TILE

All Types, Glazed and Unglazed, Commercial or Off-Quality

(a) This Quality consists of yard accumulations, has the same method of manufacture and the same type of finish as the corresponding Select or Standard Qualities.

(b) This Quality will have glaze defects and mechanical and face imperfections and chips.

(c) The shade range of this Quality will be wider than that of approved samples of Select or Standard Quality.

(d) Units in this Quality may not pass the tests for Select or Standard Qualities.

(e) This Quality may have greater tolerances than column 4 of tables 1 to 4 of the Grading Rules of the Facing Tile Institute.

(f) This Quality sold only subject to stock accumulation and prior sale.

RECOMMENDED PACKING FOR STRUCTURAL FACING TILE

GLAZED AND UNGLAZED

1. The industry uses four standard methods of packing its products.

- **a. Paper cartons or trays**
- **b. Loose in straw or hay**
- **c. Double cartons (packages)**
- **d. Wire bound boxes, crates or barrels**

2. It is recommended that "a" packing be used for Ceramic Glaze, Select Quality; Clear Glazed, Select and Standard Qualities; Salt Glaze, Select and Standard Qualities, and that "b" packing be used for all other types and qualities.

GRADING RULES FOR FACING TILE—STRUCTURAL—GLAZED AND UNGLAZED

1. Tolerances for Face Dimensions

Maximum permissible variation in the face dimensions of the finished face of units shall not exceed those in Table 1 in the column applying to the type and grade.

TABLE 1

Standard Face Dimension (Height or Length) in Inches	Maximum Permissible Variation, Plus or Minus from Standard Face Dimension, in Inches				Maximum Permissible Variation in Face Dimension, Largest to Smallest of Units on One Job, in Inches			
	Column 1	2	3	4	1	2	3	4
*2-3/8		1/16	3/32	1/8		3/32	1/8	1/8
3-3/4		3/32	1/8	5/32		3/32	5/32	3/16
5-1/16		3/32	5/32	3/16		1/8	3/16	7/32
7-3/4	1/16	1/8	3/16	1/4	1/16	3/16	1/4	9/32
11-3/4		3/16	1/4	5/16		1/4	5/16	3/8
15-3/4	1/16	1/4	5/16	3/8	1/16	5/16	3/8	1/2

NOTES: (a) Dimensions intermediate to those shown shall have permissible variation of the next larger dimension above.
(b) *Applies only to Glazed Units.
(c) Ground edge units furnished in "8W" series (7¾ x 15¾ face size) only.

2. Tolerances for Depth of Single Faced Units

Maximum permissible variation in the depth dimension of single faced units shall not exceed those in Table 2 in the column applying to the type and grade.

TABLE 2

Standard Bed Depth Dimension (Wall Thickness) in Inches	Maximum Permissible Variation, Plus or Minus from Standard Depth Dimension, in Inches			Maximum Permissible Variation in Depth Dimension, Largest to Smallest of Units on One Job, in Inches		
	Column 1 and 2	3	4	2	3	4
1-3/4	1/8	1/8	3/16	1/8	3/16	3/16
3-3/4	1/8	1/8	3/16	3/16	3/16	7/32
5-3/4	3/16	3/16	1/4	1/4	1/4	5/16
7-3/4	1/4	1/4	5/16	5/16	5/16	3/8
11-3/4		5/16	7/16		1/2	1/2

NOTES: (a) Dimensions intermediate to those shown shall have permissible variation of the next larger dimension above.
(b) No bed depth greater than 3¾ in. will be made in trim shades of Ceramic Glaze.

3. Tolerances for Depth of Two Faced Units

Maximum permissible variation in the depth dimensions of units intended for use where two exposed finished faces are required shall not exceed those in Table 3 in the column applying to the type and grade.

TABLE 3

Standard Bed Depth Dimension (Wall Thickness) in Inches	Maximum Permissible Variation, Plus or Minus from Standard Depth Dimension, in Inches			Maximum Permissible Variation in Depth Dimension, Largest to Smallest of Units on One Job, in Inches		
	Column 1 and 2	3	4	2	3	4
3-3/4	1/8	1/8	5/32	1/8	1/8	5/32
5-3/4	5/32	3/16	7/32	3/16	3/16	7/32
7-3/4	3/16	1/4	9/32	1/4	1/4	9/32
11-3/4		5/16	3/8		5/16	3/8

NOTES: (a) Dimensions intermediate to those shown shall have permissible variation of the next larger dimension above.
(b) No bed depth in two faced units greater than 3¾ in. will be made in Ceramic Glaze or Clear Glaze.
(c) No two faced units will be made in bed depth greater than 3¾ in. in Salt Glaze except that some may be furnished with smooth glazed back, selected for one face only.
(d) Variation in the bed depth of individual two faced units is controlled by the limitations on distortion. The thickness of such units shall be considered either the maximum or minimum thickness of the unit, whichever is the farthest from the standard dimension.

4. Tolerances for Distortion of Face or Edge

The maximum permissible distortion of the plane and the edges of the face of individual units from a plane surface and from a straight line respectively shall not exceed those in Table 4 in the column applying to the type and grade.

TABLE 4

Standard Face Dimensions (Height and Length) in Inches	Maximum Permissible Distortion in Inches		
	Column 1 and 2	3	4
*2-3/8 x 7-3/4	3/64	1/16	
5-1/16x 7-3/4	1/16	3/32	1/8
5-1/16x11-3/4	3/32	1/8	5/32
3-3/4 x11-3/4	3/32	1/8	5/32
7-3/4 x11-3/4	5/32	3/16	1/4
7-3/4 x15-3/4	3/16	1/4	5/16

NOTES: (a) When convex units are laid upon a plane surface, the apparent variation is greater than the actual variation from the plane of the unit.
(b) *Applies only to Glazed Units.

5. Maximum Permissible Chippage

The maximum permissible extent of chippage from the edges and corners of a unit into the surface of the stretcher and one header face shall not exceed those in Table 5 in the column applying to the type and grade.

TABLE 5

†Chippage in Inches	Maximum Permissible Chippage in Inches		
	Column 2	3	4
In from edge	1/8	3/16	1/4
In from corner	1/4	5/16	3/8

†Not to exceed 5 per cent of any shipment may have chippage in excess of the allowance applying to the grade but not in excess of the chippage allowance in the next lower column.

6. Absorption

The maximum permissible absorption by 24 hours submersion in cold water shall not exceed those in Table 6 in the column applying to the type and grade.

TABLE 6

	Maximum Average Absorption of 5 Units Per Cent			Individual Maximum Absorption of any Unit Per Cent		
	Column 1 and 2	3	4	2	3	4
For Exterior use where exposed to frost action	5	6	10	7	9	12

Absorption limitations on ceramic glazed and clear glazed units shall be increased 50 per cent when units are not intended for use where exposed to frost action. When units intended for use where exposed to frost action are required, they must be specifically specified by the purchaser.

7. Compressive Strength

The compressive strength of units in pounds per square inch based upon gross areas shall be not less than those in Table 7 in the column applying to the type and grade.

TABLE 7

Direction of Coring	Minimum Average of 5 Units lbs. per sq. in.			Individual Minimum One Unit lbs. per sq. in.		
	Column 1 and 2	3	4	2	3	4
Vertical	3000	2200	1500	2500	1800	1200
Horizontal	2000	1500	1200	1500	1200	1000

PHYSICAL REQUIREMENTS FOR STRUCTURAL FACING TILE

(GLAZED AND UNGLAZED)

1. TYPE OF UNITS

Units may be solid, multicored or hollow.

Solid units contain no enclosed hollow spaces within the perimeter of the unit.

Multicored units contain holes or cores. Cores are hollow spaces enclosed within the perimeter of the exterior shells and having a minumum dimension of less than ½ inch or a cross-sectional area of less than 1 square inch.

Hollow units contain cells. Cells are hollow spaces enclosed within the perimeter of the exterior shells and having a minimum dimension of not less than ½ inch and a cross-sectional area of not less than 1 square inch.

2. NUMBER OF CELLS

Requirements as to number of cells apply to hollow units only.

Hollow units of 6 inch and 8 inch thickness shall have not less than 2 cells or rows of cells in the direction of wall thickness.

Double shell tile shall be considered as having one additional cell in the direction of wall thickness if either:

(a) The combined width of the voids between exterior and interior shells on both sides of the tile is not less than ½ inch and the combined thickness of the short webs between the inner and outer shells is not greater than that of the long transverse webs holding the inner shells, or

(b) The combined thickness of the inner and outer shells on each side of the tile is not less than 1 inch.

The face shells of single shell tile with multicored or solid face shells at least 1½ inches thick on both sides of the tile shall be considered as one additional cell in wall thickness, provided the volume of the cores in multicored shells does not exceed 35 per cent of the gross volume of the face shell and the minimum distance from perimeter of core to either side of shell is not less than ⅜ inch.

3. SHELL AND WEB THICKNESS

(a) Multicored units. The minimum distance from the perimeter of core to the side (face) shells of multicored units shall be not less than ¾ inch.

(b) Hollow units. The average overall thickness of the shells, measured between the inner and extreme outer surfaces of vertical cell hollow units, shall be not less than ¾ inch. The thickness of the webs shall be not less than ½ inch.

The overall thickness of the side (face) shells, measured between the inner and extreme outer surfaces of horizontal cell hollow units shall be not less than ¾ inch. The net thickness of the top and bottom shells shall be not less than ½ inch, that is, when the top and bottom shells are scored, the overall thickness of the top and bottom shells shall be not less than ½ inch plus the depth of the grooves. The thickness of the webs shall be not less than ½ inch.

4. SCORING

Unless otherwise specified by the purchaser, smooth or scored back glazed units or a mixture thereof may be furnished and smooth, combed or roughened back unglazed units or a mixture thereof may be furnished.

When scored, each groove shall be dovetailed and shall be not less than 1/16 inch nor more than ¼ inch in depth, and not more than 1 inch in width. The area covered by the grooves shall not exceed 50 per cent of the area of the scored faces.

When combed, the tile shall be scratched or scarified, prior to burning, by mechanical means which shall make scratches or scarifications on the surface of the tile not less than 1/16 inch nor more than ⅛ inch in depth, and not more than ¼ inch apart. When roughened, the die skin on the face of the tile shall be entirely broken by mechanical means, such as wire cutting or wire brushing. (The die skin may be observed within the cells of the tile.)

5. CORING

Type and direction of coring are optional with each manufacturer. Unless heavy units (priced in relation to excess weight and cost) are definitely required, maximum per cent of coring is fixed by the requirements of Sections 2 and 3. Heavy duty units may be either solid or cored not to exceed the maximums shown below:

Standard Thickness Inches	Maximum Per Cent Coring
3¾	25
5¾	35
7¾	35

Per cent of coring shall be taken as the per cent of the gross volume of the unit removed by coring. Gross volume of the unit shall be determined to the outside of the scoring, but the material removed by scoring shall not be considered as part of the coring.

METHODS OF TESTS FOR STRUCTURAL FACING TILE

(GLAZED AND UNGLAZED)

1. SAMPLING AND INSPECTION

For the imperviousness, chemical resistance, crazing, opacity, compression and absorption tests, at least eight units shall be selected by the purchaser or his authorized representative.

Eight stretcher units shall be tested for a lot of 10,000 units or fraction thereof; for larger lots, eight additional specimens may be tested for each 30,000 units or fraction thereof. When less than 1,000 units of any size are ordered, no samples shall be required.

METHODS OF TESTS FOR STRUCTURAL FACING TILE (Continued)

(GLAZED AND UNGLAZED)

The purchaser or his authorized representative shall be accorded opportunity for sampling and inspecting units at the place of manufacture, prior to shipment. At least ten days from the time of sampling should be allowed for completion of the tests. The expense of the inspection and testing shall be borne by the purchaser.

2. IMPERVIOUSNESS TEST

Standard blue-black fountain pen ink shall be applied liberally to the glazed surface of five dry specimens and allowed to remain for five minutes. The surface shall then be washed with a wet cloth and running water, and examined at a distance of five feet for staining of the finish.

3. CHEMICAL RESISTANCE TEST

A portion of the glazed surface of two of the specimens shall be submerged in a 10 per cent solution of hydrochloric acid for three hours. Another portion of the glazed surface of the same specimens shall be submerged in a 10 per cent solution of potassium hydroxide for three hours. These solutions shall be maintained at a temperature of 60 to 80° F. (15 to 27° C.). The finishes shall then be rinsed, dried and examined for changes of texture and color.

4. CRAZING TEST

The crazing test shall be made on three whole dry units previously tested for imperviousness of finish. Specimens subjected to the chemical resistance test shall not be used.

The autoclave shall be of sufficient capacity to contain all the units of the same texture, color and size. The apparatus shall be equipped with a safety valve, blow-off valve, and pressure gauge whose accuracy is within 2 per cent of the scale range, and a heater of sufficient capacity to insure constant steam pressure within the autoclave.

The specimens shall be loosely placed above the water in the autoclave at room temperature. After fastening the autoclave head in place, the water in the bottom shall be heated from an external source. The blow-off valve shall be kept open until steam begins to escape, thereby expelling most of the air. After closing the blow-off valve, the water shall be kept boiling and the steam pressure increased at a uniform rate until 150 lbs. per square inch of pressure is reached within a period of not less than 60 minutes or exceeding one and one-half hours. Sufficient heat shall be applied to maintain a constant steam pressure of 150 lbs. per square inch (plus or minus 5 lbs.) for an additional hour.

The heater shall then be shut off and the steam pressure released slowly in not less than 30 minutes by opening the blow-off valve. The autoclave head shall be loosened, but not removed, and the specimens permitted to cool gradually to room temperature (not exceeding 120° F.) in a period not less than three hours. The specimens shall then be removed and standard blue-black fountain pen ink rubbed upon the glazed surfaces to aid in the detection and examination of failures.

Alternate Method of Test: As an alternate method, saturated live steam may be used to supply the pressure required. The steam pressure supply shall be maintained at a minimum of 150 lbs. per square inch. The apparatus shall be equipped with a control valve and a bleeder valve. The bleeder valve shall be so located as to maintain a constant water level below the supports of the specimens.

By constant manipulation of the control valve, steam shall be emitted into the autoclave at a rate which uniformly raises and maintains the pressure on the specified schedule. During the test, the "bleeder" valve shall be left open slightly to maintain the constant water level.

The pressure shall be released according to the specified schedule by manipulation of the bleeder valve.

Other than control, the specifications shall be the same as for the externally heated apparatus.

It is advisable to have a "bleeder" on the live steam feed line to eliminate the condensate in the feed line before starting the test.

5. OPACITY TEST

The opacity test shall be conducted on three dry specimens by applying standard blue-black fountain pen ink liberally to the body along a 2 inch length of the edge of the finished surface. After five minutes, the finish shall be examined for opacity.

When the same three specimens are to be subjected to the opacity and crazing tests, the opacity test shall be made first.

6. ABSORPTION TEST

The absorption test shall be made on three whole specimens or on three pieces containing not less than 16 square inches of glazed surface and of the thickness of the body, cut or sawed from three specimens. When the same three specimens are to be subjected to the absorption and crazing tests, the absorption test shall be made first. The absorption test shall be made in accordance with the Standard Methods of Sampling and Testing Brick (A.S.T.M. Designation C 67) of the American Society for Testing Materials.

7. COMPRESSION TEST

Compression tests shall be made on three samples in accordance with the Standard Methods of Sampling and Testing Brick (A.S.T.M. Designation C 67) of the American Society for Testing Materials.

The same specimens used in the crazing test shall not be used in the compression test. When the same three specimens are to be subjected to the absorption and compression tests, the specimens shall be dried to constant weight before subjecting them to the compression test.

FIRE RESISTANCE PERIODS FOR VARIOUS TYPES OF CLAY MASONRY WALLS AND PARTITIONS

The standard fire test procedure to determine fire resistance periods for masonry construction is described in the "Standard Methods of Fire Tests of Building Construction and Materials", Designation ASA No. 2 of the American Standards Association, and adopted as standard by the American Society for Testing Materials, Designation E119.

These specifications prescribe a fire endurance test which consists of exposing one side of the panel specimen to a standard high-intensity fire of controlled extent and severity. The performance is defined as the elapsed period before the first critical point in behavior is observed. This may be (1) the passage of flame or gas hot enough to ignite cotton waste during the fire endurance test, or (2) the passage of water during the hose stream test, or (3) the transmission of heat through the wall or partition during the fire endurance test shall not be such as to raise the temperature on its unexposed surface more than 250° F. above its initial temperature.

Results of fire tests on structural tile walls and partitions and composite walls of brick and tile are reported in National Bureau of Standards Report BMS92, "Fire Resistance Classifications of Building Construction", October 1942, and reproduced in Tables 8 and 9 for various typical units. The fire resistance ratings listed in Table 10 are based upon standard fire tests conducted at Ohio State University.

TABLE 8

LOAD-BEARING BRICK FACED WALLS OF CLAY, OR SHALE, STRUCTURAL TILE

Nominal wall thickness	Description	Ultimate Fire-Resistance Period	
		No plaster	Plaster inside
in.		hr.	hr.
8	4-in. 40 per cent solid tile plus 4-in. brick face	3½	4
12	8-in. 40 per cent solid tile plus 4-in. brick face	6	7
12	8-in. 70 percent solid tile plus 4-in. brick face	10 (a)	(a)

(a) Based on wall failure under load. If based on temperature rise, the ultimate fire-resistance period would be 11 hr. for the unplastered wall and 12 hr. for the wall plastered on one side.

Note: Not less than 5/8-in. of 1:3 sanded gypsum plaster required to develop the above ratings for plastered walls.

TABLE 10

STRUCTURAL FACING TILE PARTITIONS

Nominal wall thickness, inches	Description	Ultimate fire resistance
6	Glazed or unglazed facing tile cored not in excess of 25 percent, 2 units in wall thickness	3 hours
6	2 inches glazed or unglazed facing tile cored not in excess of 25 percent and 4 inches structural tile cored not in excess of 40 percent, plastered on unglazed side with ¾ inch gypsum sand plaster (1:3 by volume)	3 hours
4	Glazed or unglazed facing tile cored not in excess of 25 percent, plastered on unglazed side with ¾ inch of gypsum sand plaster (1:3 by volume).	2 hours
4	Glazed or unglazed facing tile cored not in excess of 30 percent, plastered on unglazed side with ¾ inch vermiculite plaster.	2 hours
4	Glazed or unglazed facing tile meeting requirements of ASTM Specifications for Structural Clay Load-Bearing Wall Tile, C34-41, except that the shells of solid shell horizontal cell units shall be not less than ¾ inch thick, plastered on unglazed side with ¾ inch gypsum sand plaster (1:3 by volume).	1 hour

Note: All plastered partitions plastered on unexposed side.

TABLE 9

LOAD-BEARING WALLS OF CLAY, OR SHALE, STRUCTURAL TILE

Nominal wall thickness	Units in wall thickness	Cells in wall thickness	Minimum percentage of solid materials in units (a)	Ultimate Fire-Resistance Period				
				Incombustible members framed into wall or no framed-in members			Combustible members framed into wall	
				No plaster	Plaster on one side	Plaster on two sides	No plaster	Plaster on exposed side
in.				hr.	hr.	hr.	hr.	hr.
8	1	2	43	1½	2	3	¾	1½
8	1	2	49	2	3	4	1¼	2
8	1	3 or 4	43	2	3	4	¾	1½
8	1	3 or 4	53	3	4	5	1¼	2
12	1	3	40	2½	3½	4	2	3
12	1	3	49	3½	4	6	3	4
12	2	3 or 4	45	4	5	6	2½	3½
12	2	3 or 4	53	5	6	7	3	4

(a) The percentage of solid material in units given above, in the case of walls built up of units of different designs, is to be taken as the weighted average for the units at the courses in the wall where the average percentage is the lowest.

Notes: All tile is to conform with ASTM specifications from the standpoint of strength and absorption.
Not less than 5/8-in. of 1:3 sanded gypsum plaster is required to develop the above ratings for plastered walls.

FINISHES AND COLORS OF GLAZED AND UNGLAZED FACING TILE

CERAMIC COLOR GLAZE

Finishes—Glossy and Satin Matt

STRAIGHT FIELD COLORS

White

Light Gray

Ivory

Cream

Buff

Light Green

★

MOTTLED FIELD COLORS

Light Gray and Tan

Ivory and White

Ivory and Light Green

Cream and Buff

Cream and Brown

★

STRAIGHT TRIM COLORS

Brown

Black

CLEAR GLAZE

Finish—Glossy

COLORS

Clear Glaze

★

SALT GLAZE

Finish—Glossy

COLORS

Cream

Buff

★

UNGLAZED

Finish—Smooth

COLORS

Light Gray

Cream

Light Buff

Golden Buff

Gray Manganese Spot

Cream Manganese Spot

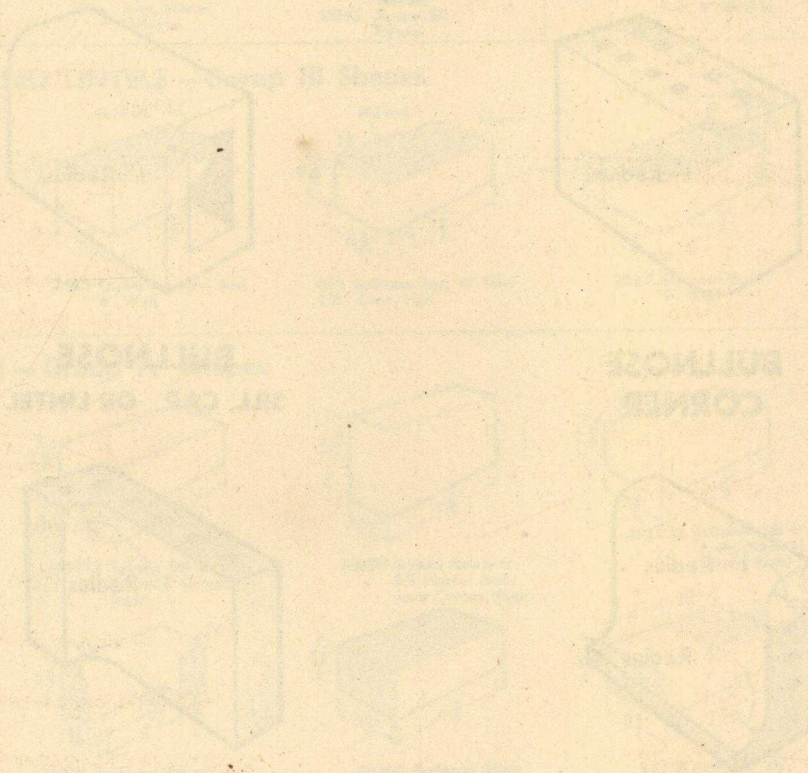
Pink Iron Spot

Buff Iron Spot

Dark Brown Iron Spot

Part II

Modular Sizes

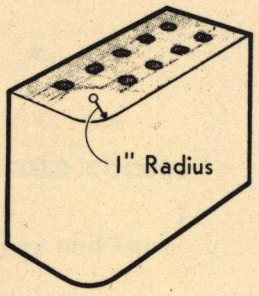


GENERAL PRODUCTS INFORMATION

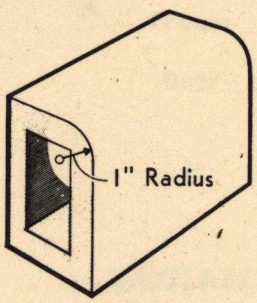
In interest of better delivery and better service to the job, designers are urged to confine each job to one face size series.

Where the suffix R is added to any shape number substitute suffix L for opposite hand and vice versa.

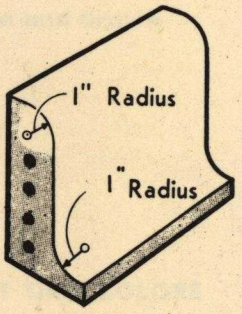
STANDARD RADII FOR ALL SERIES



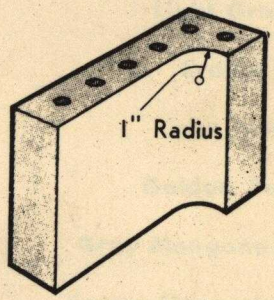
BULLNOSE CORNER



BULLNOSE
SILL, CAP, OR LINTEL



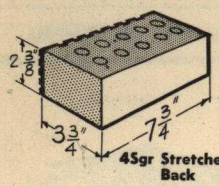
COVE BASE



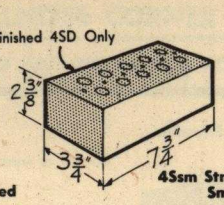
INTERNAL COVE

2 2/3"x8" FACE ("4S" Series)

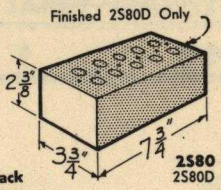
STRETCHER GROUP



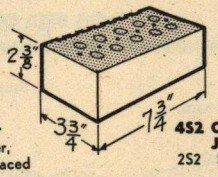
4Sgr Stretcher, Scored Back



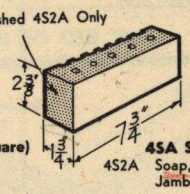
4Ssm Stretcher, Smooth Back
4SD Stretcher, Two Faced



2S80 Header
2S80D Header, Two Faced



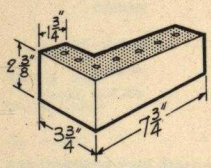
4S2 Quoin (Square) Jamb
2S2 Same, Half



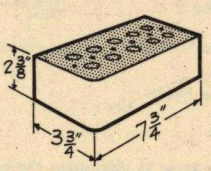
4SA Soap Stretcher
4S2A Soap, Quoin (Square) Jamb, 2" Return

Unless job conditions require either SMOOTH or SCORED BACK STRETCHERS, shipment may be facilitated by ordering 4S Stretchers, thereby permitting manufacturer to ship either the scored or smooth back stretchers or a mixture. Type and direction of SCORING and CORING are optional with each manufacturer.

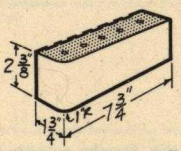
JAMBS, CORNERS & OCTAGONS — Group I Shapes



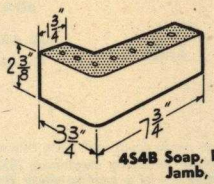
4S2B Soap, Quoin (Square) Jamb, 4" Return



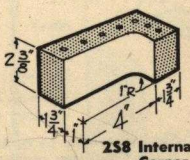
4S4 Bullnose Jamb
2S4 Same, Half



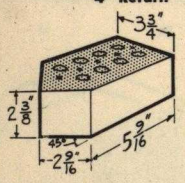
4S4A Soap, Bullnose Jamb, 2" Return



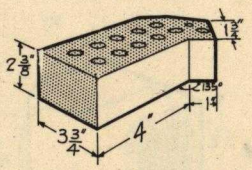
4S4B Soap, Bullnose Jamb, 4" Return



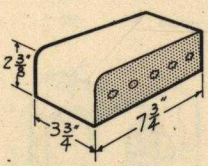
2S8 Internal Coved Corner



3S6 External Octagon
3S6A Soap, External Octagon

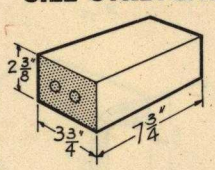


2S9 Internal Octagon
2S9A Soap, Internal Octagon

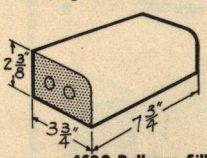


2S280 Bullnose Sill Header
2S180 Square Sill Header

SILL STRETCHERS — Group II

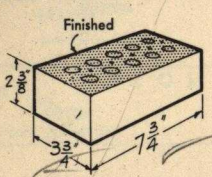


4S10 Square Sill or Cap, 4" Reveal

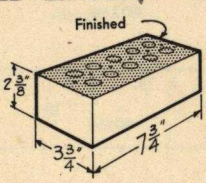


4S20 Bullnose Sill or Cap, 4" Reveal
4S20A Soap, Bullnose Sill or Cap, 2" Reveal

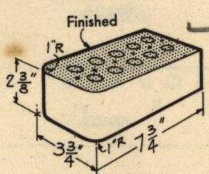
WALL ENDS & RECESSED LINTELS — Group III Shapes



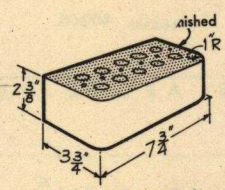
4S3 Quoin (Square) End, 4" Wall
2S3 Same, Half



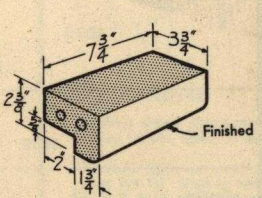
2S83 Quoin (Square) End, 8" Wall



4S5 Bullnose End, 4" Wall
2S5 Same, Half

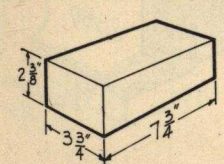


2S85 Bullnose End, 8" Wall

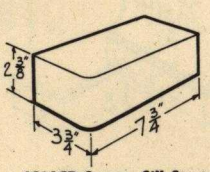


4S720 Recessed Bullnose Lintel
4S710 Recessed Square Lintel

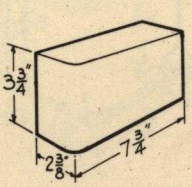
FITTINGS FOR ABOVE — Group IV Shapes



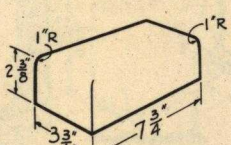
4S12CR Square Sill or Cap, Quoin (Square) Corner, Right



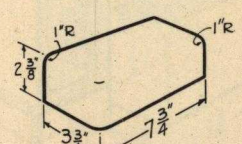
4S14CR Square Sill Starter, Bullnose Corner, Right



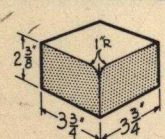
4S15R Square Rowlock Sill Starter Bullnose Corner, Right



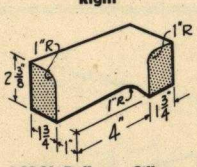
4S22CR Bullnose Sill or Cap, Quoin (Square) Corner, Right



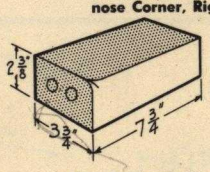
4S24CR Bullnose Sill or Cap, Bullnose Corner, Right



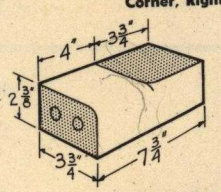
2S27H Bullnose Sill or Cap, Internal Square Corner, Half



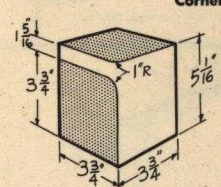
2S28L Bullnose Sill or Cap, Internal Coved Corner, Left



4S30R Bullnose Miter, Right

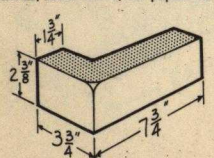


4S31R Bullnose Sill Miter, Right

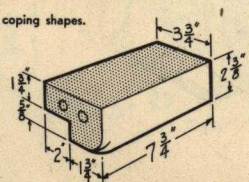


2S34R Bullnose Rowlock Sill and Jamb Miter, Right

SILL SHAPES, shown above, are popular as cap and coping shapes.



4S304R Bullnose Sill Starter, Bullnose Jamb, Right



4S730R Recessed Bullnose Lintel Miter, Right

Note: The above shapes are not furnished by all producers. They are usually available, however, where stretcher units are used as the field. They are also available as coursing units when shown on pages 14 to 18.

For Radial Shapes, See Page 17 —captions below "4D" Series Radials.

An extra charge is made for cutting lengths or heights other than those shown or listed.

A power driven saw should be used for all cutting on the job.

Nominal dimensions are usually given for returns, reveals, etc., 2" is actually 1¾" and 4" is actually 3¾" and 6" is actually 5¾".

Cove Base units are not made in one-brick equivalents. For Cove Base units to be used with Series "4S", see following pages.

5 1/3"x8" FACE ("4D" Series)

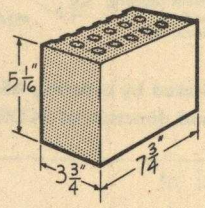
STRETCHER

4" BED OR REVEAL | **2" BED OR REVEAL** | **6" BED OR REVEAL** | **8" BED OR REVEAL**

FIELD

Group

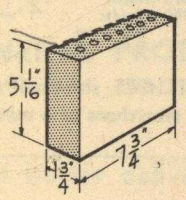
Stretcher
Scored or unscored



4D

4Dsm■
4Dsu
4Dgr (shown)
Also Available
4S–2 3/8" high

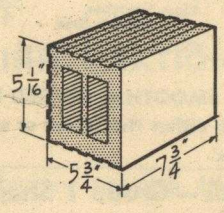
Soap



4DA

Also Available
4SA—2 3/8" high

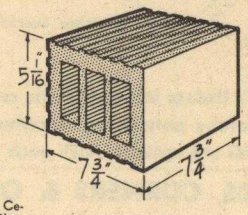
6" Stretcher
Scored or unscored



4DC60

4DC60sm■*
4DC60su
4DC60gr (shown)

8" Stretcher
Scored or unscored



4DC80

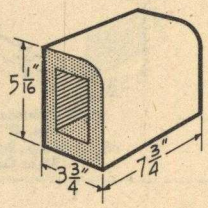
4DC80sm■*
4DC80su
4DC80gr (shown)

* Not made Ceramic or Clear Glaze

Shipments may be facilitated by simply ordering stretchers (EXAMPLE 4D), thereby permitting the manufacturer to ship either the scored or smooth back stretchers or a mixture. If job conditions require that the back be of a certain type, they may be obtained by ordering the following: sm—unselected glazed back; su—unselected, unscored, unglazed back; gr—scored or grooved back. Type and direction of SCORING and CORING are optional with the manufacturer.

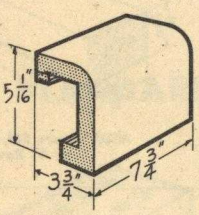
BULLNOSE
SILL, CAP OR LINTEL

Group II



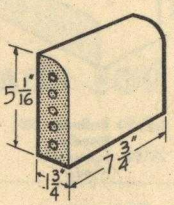
4D20

Group II



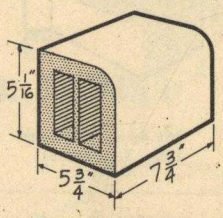
4D20B

Group II



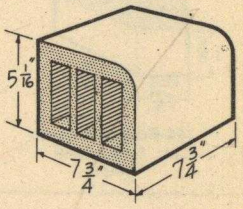
4D20A

Group III



4D260

Group III



4D280
2D280—3¾" long

SQUARE

SAME AS ABOVE BUT SQUARE INSTEAD OF BULLNOSE

Group II **4D10**

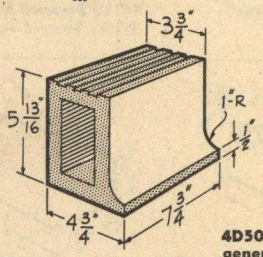
Group II **4D10A**

Group III **4D160**

Group III **4D180**
2D180—3¾" long

COVE BASE

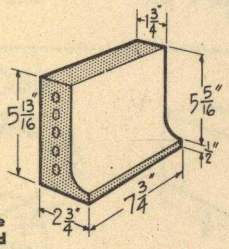
Group III



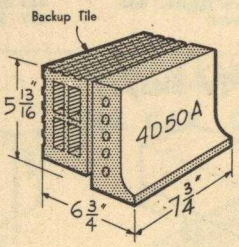
4D50

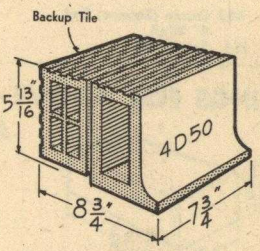
4D50A units are generally used with stretchers

Group II



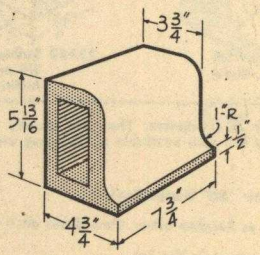
4D50A





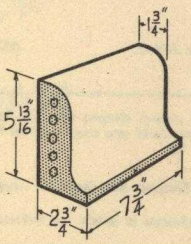
ROUND TOP COVE BASE

Group IV

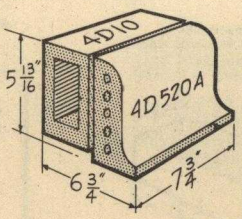


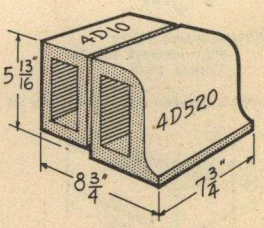
4D520■

Group III



4D520A■





■Not made unglazed.

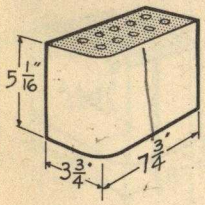
5 1/3"x8" FACE ("4D" Series)

BULLNOSE CORNER OR JAMB, AND STARTER

4" RETURN OR SOAP (4" RETURN)

SOAP (2" RETURN)

Group I



4D4

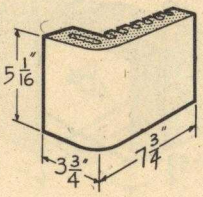
3D4—5¾" length

2D4—3¾" length

Also Available

4S4—2⅜" high

Group I



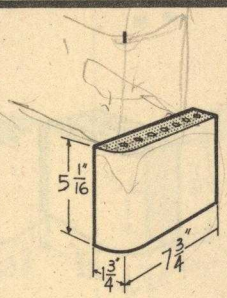
4D4B

Also Available

4S4B—2⅜" high

Note: Nominal dimensions are usually given for returns, reveals, lengths, etc.,—2" is actually 1¾", 4" is actually 3¾", 6" is actually 5¾", 8" is actually 7¾", 10" is actually 9¾", 12" is actually 11¾". However, all dimensions shown on shape drawings are actual.

Group I

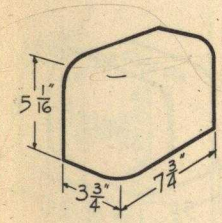


4D4A

An extra charge is made for cutting lengths or heights other than those shown or listed.

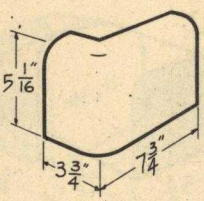
A power driven saw should be used for all cutting on the job.

Group V



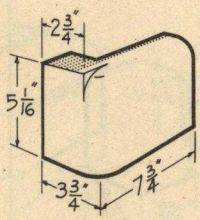
4D24CR

Group IV



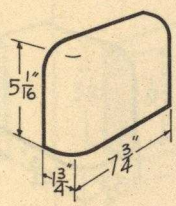
4D24R

Group IV Starter



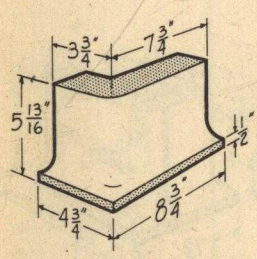
4D24X2R

Group IV



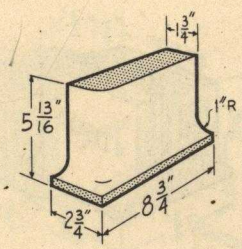
4D24AR

Group IV



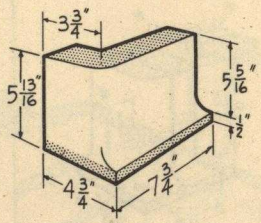
4D54R

Group IV

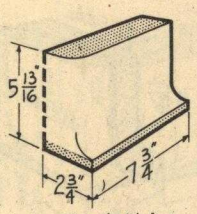


4D54AR

Group IV

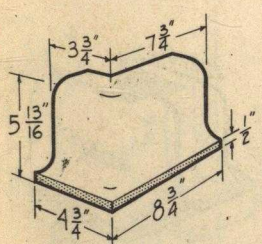


4D504R



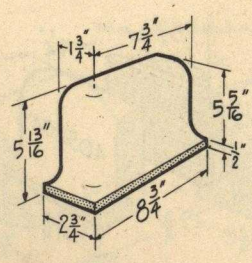
cut on the job from 4D504R

Group V



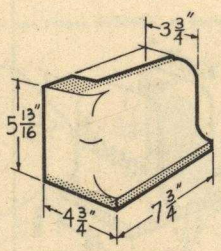
4D524R■

Group V

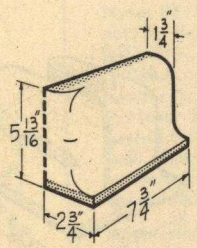


4D524AR■

Group V



4D5204R■

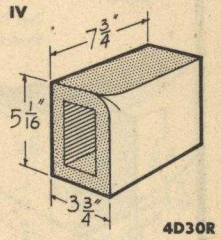


Cut on the job from 4D5204R■

■Not made unglazed.

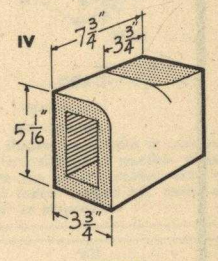
MITER

IV



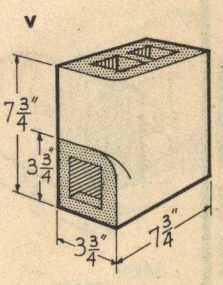
4D30R

IV



4D31R

V

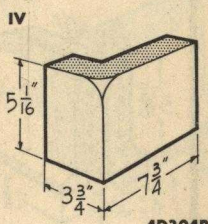


4D34R

Miters shown above may be used for sills, lintels, or jambs.

The above miters may be obtained in soaps with 3¾" return by adding the suffix "B" to the shape number

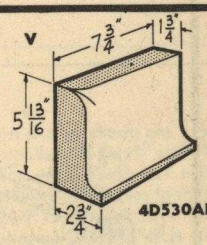
IV



4D304R

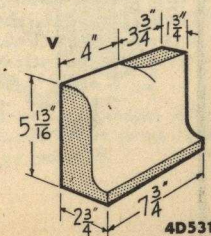
Use with slope sills and bullnose jambs

V



4D530AR■

V



4D531R■

5 1/3"x8" FACE ("4D" Series)

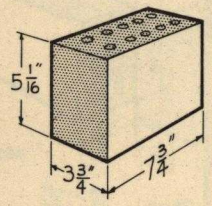
4" WALL—GLAZED BOTH SIDES

FIELD

STRETCHER

Group III

Two Faced Stretcher

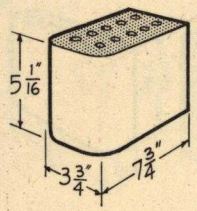


4DD

Also available 4SD—2 3/8" high

FULL END

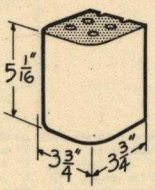
Group III



4D5

HALF END

Group III

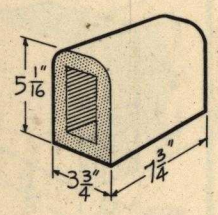


2D5

BULLNOSE SILL, CAP OR LINTEL

STRETCHER

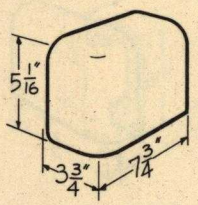
Group III



4D20D

FULL END

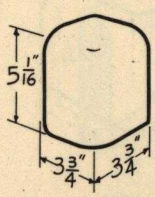
Group VI



4D25

HALF END

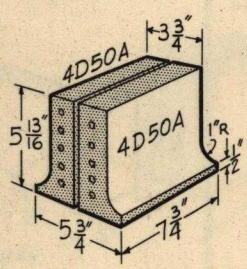
Group VI



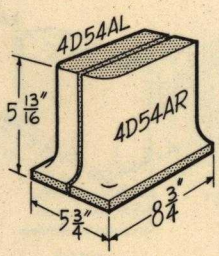
2D25

COVE BASE

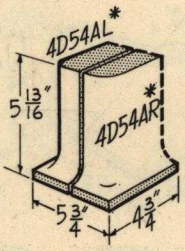
STRETCHER



FULL END

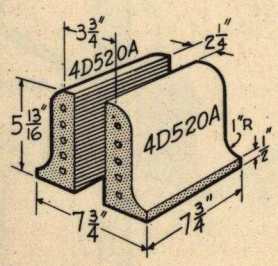


HALF END

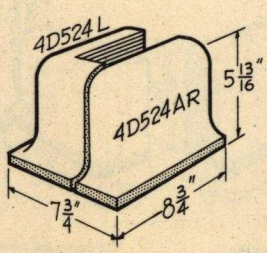


ROUND TOP COVE BASE

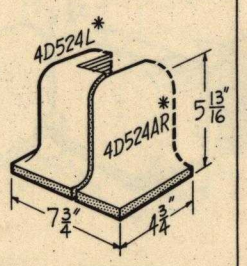
STRETCHER



FULL END



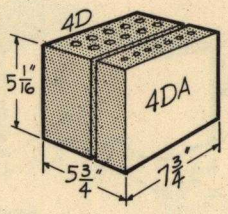
HALF END



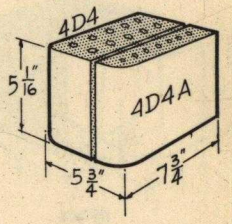
6" WALL—GLAZED BOTH SIDES

FIELD

STRETCHER



FULL END



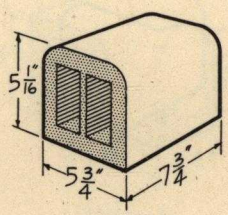
Note: Supplied as one unit in salt glazed and unglazed—selected for one face only.

*—means cut on the job from standard unit.

BULLNOSE SILL, CAP OR LINTEL

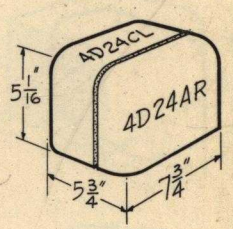
STRETCHER

Group IV



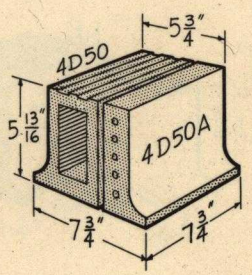
4D260D

FULL END

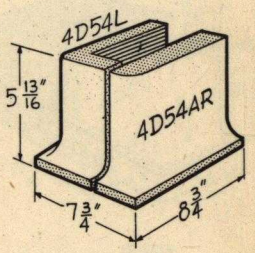


COVE BASE

STRETCHER

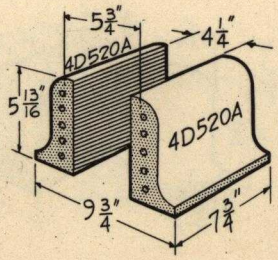


FULL END

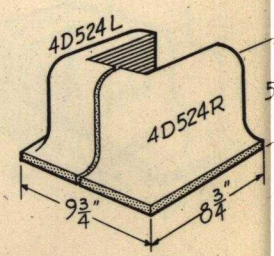


ROUND TOP COVE BASE

STRETCHER



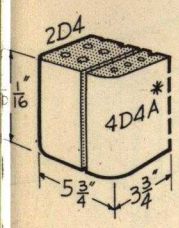
FULL END

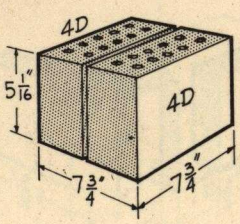


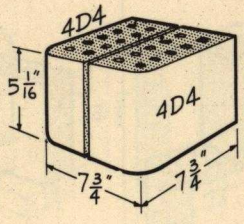
5 1/3"x8" FACE ("4D" Series)

6" WALL	8" WALL—GLAZED BOTH SIDES			STANDARD RADIALS	
HALF END	STRETCHER	FULL END	HALF END	STRETCHER	STARTER

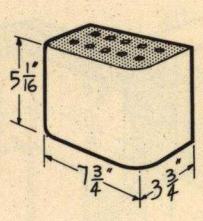
Group





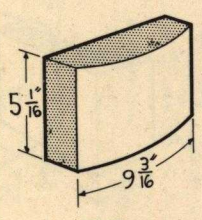


III



2D85

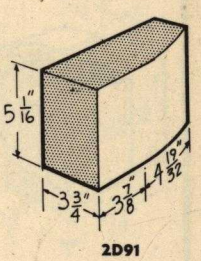
III



5T90

Also available 5S90—2 3/8" high

V

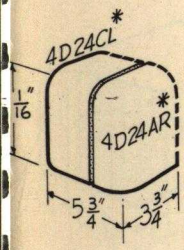


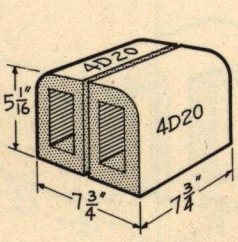
2D91

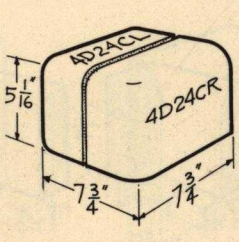
Also Available 2S91—2 3/8" high

Note: INTERNAL radial shapes are similar in numbering and dimensioning. In ordering by number simply prefix the letter, "I" to the corresponding external shape number. Internal radial shapes are manufactured for a radius of 48" as standard.

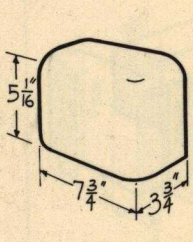
Group





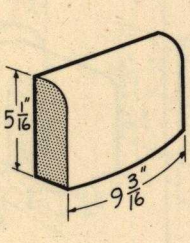


VI



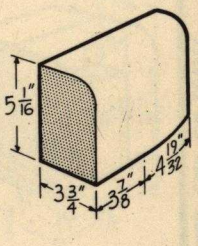
2D285

V



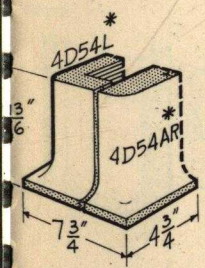
5T920

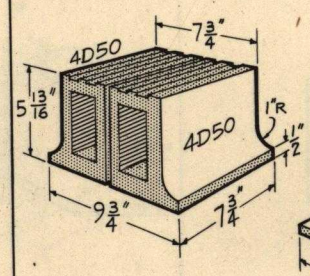
VII

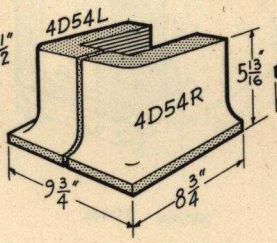


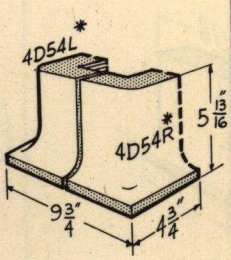
2D921L

Group

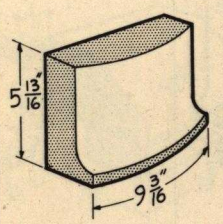






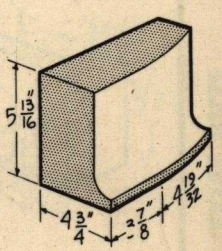


V



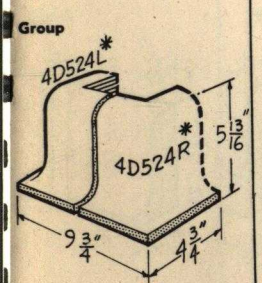
5T950

VII



2D951L

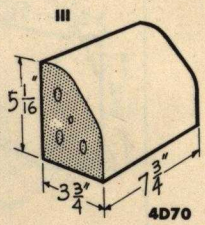
Group



SLOPE SILLS

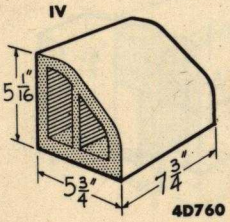
When used with bullnose jambs, use shapes 4D304R/L as starters.

III



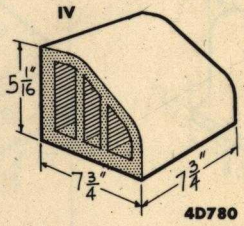
4D70

IV



4D760

IV



4D780

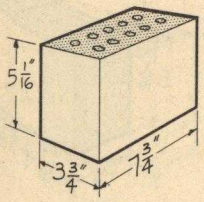
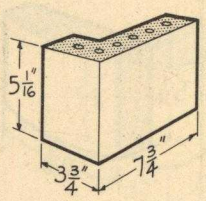
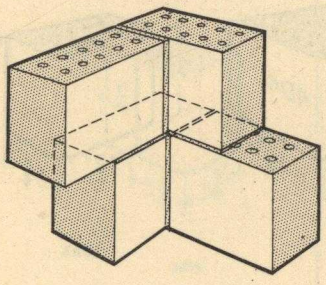
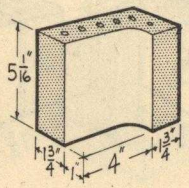
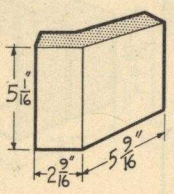
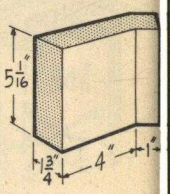
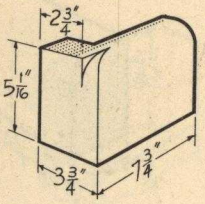
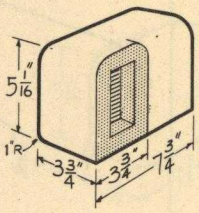
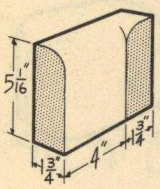
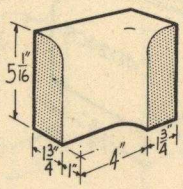
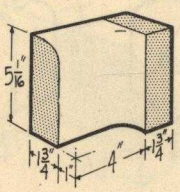
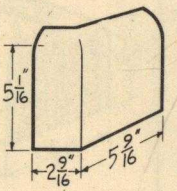
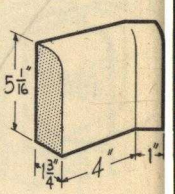
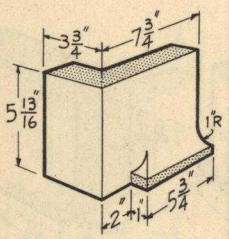
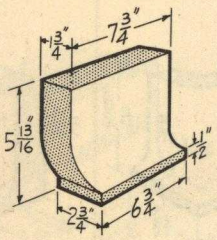
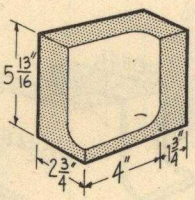
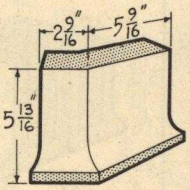
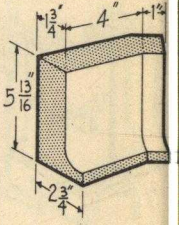
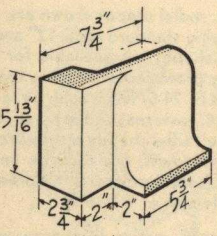
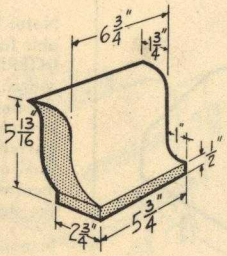
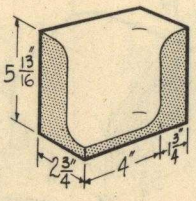
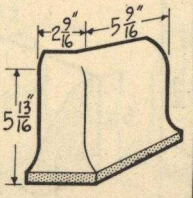
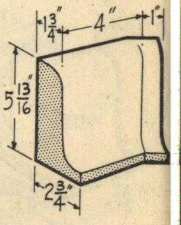
NOTE: Slope sills also available 6 3/8" high—See Page 19

Slope sills also available 7 3/4" high—See Page 19

Note: EXTERNAL radial shapes shown are available for the following standard radii: 12" and 24". INTERNAL radial shapes are available for a 48" radius. In ordering, prefix radius in inches to shape number (EXAMPLE: 24-5T90 would be a field stretcher for a 24" external radius). It is suggested that where radial shapes are desired for radii other than standard, the radii be kept to increments of 12" from standard. (This preserves the standard arc length of 9 3/16".)

In non-standard radii, group III shapes will be group VI, group V shapes will be group X, and group VII shapes will be group XII.

5 1/3"x8" FACE ("4D" Series)

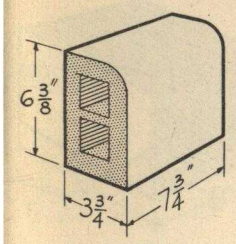
	QUOIN (SQUARE) JAMB OR STARTER 4" RETURN OR SOAP (4" RETURN)	SQUARE INTERNAL CORNER 4" OR 2" BED	COVED INTERNAL CORNER	OCTAGONAL EXTERNAL CORNER	OCTAGON INTERNA CORNER
FIELD	Group I - I  4D2 2D2—3¾" length  4D2B	 Use regular stretchers or soaps for the field	I  2D8 Also Available 2S8—2⅜" high	I  3D6 Also Available 3S6A—2⅜" high	I  2D9 Also Available 2S9A—2⅜" high
BULLNOSE SILL, CAP OR LINTEL	Group IV Starter  4D22X2R	V 4" Reveal  4D24X27R IV 2" Reveal  2D27L	IV  2D28L IV  2D208L	IV  3D26R	IV  2D29L
COVE BASE	Group IV  4D502R	IV  4D57R	IV  2D58L	IV  3D56R	IV  2D59L
ROUND TOP COVE BASE	Group V  4D5202R*	V  4D527R*	V  2D528L*	V  3D526R*	V  2D529L* *Not made ungla

5 1/3" x 8" ("4D" Series)

SUPPLEMENTAL SILL OR LINTEL STRETCHERS

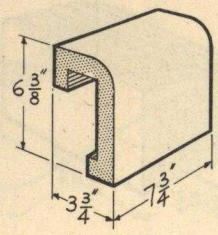
4" BED OR REVEAL	2" BED OR REVEAL	6" REVEAL	8" REVEAL

Group III



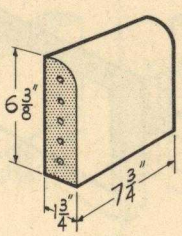
4N20

Group III

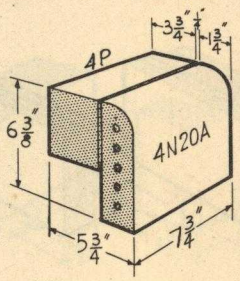


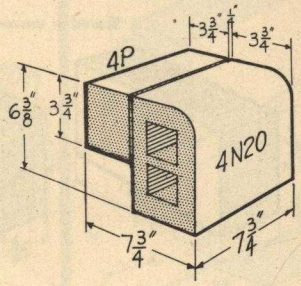
4N20B

Group III

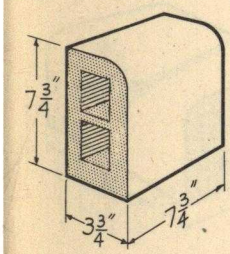


4N20A



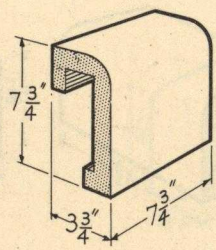


Group III



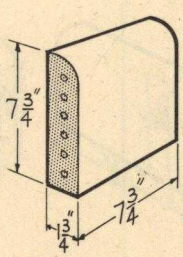
4W20

Group III

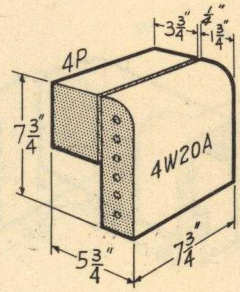


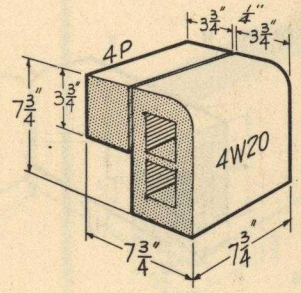
4W20B

Group III



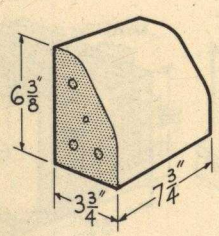
4W20A





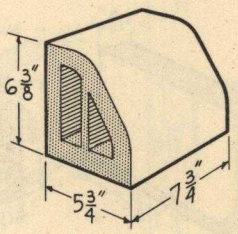
S L O P E S I L L S

Group IV

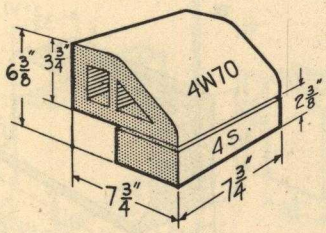


4N70

Group V

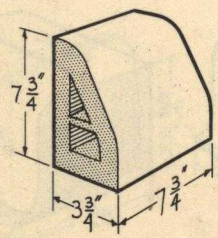


4N760

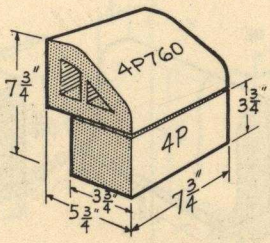


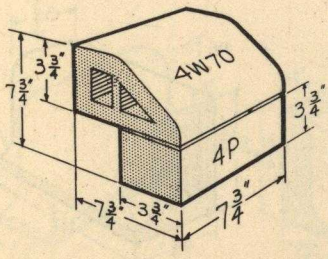
S L O P E S I L L S

Group IV



4W70





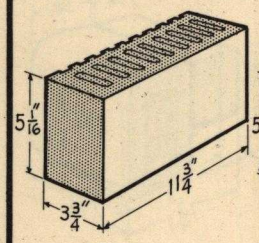
5⅓" x 12" FACE (6T Series)

STRETCHER.

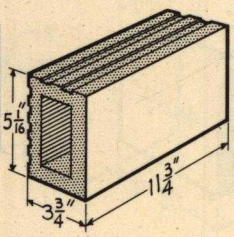
4" BED OR REVEAL | 2" BED OR REVEAL | 6" BED OR REVEAL | 8" BED OR REVEAL

FIELD

GROUP Stretcher — Scored or unscored

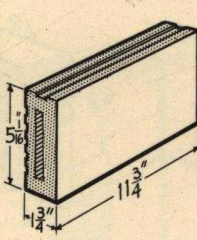


6T
6Tsm■
6Tsu
6Tgr (shown)
Also Available
6S—2⅜" high

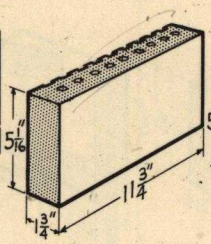


6TC
6TCsm■
6TCsu
6TCgr (shown)

Soap

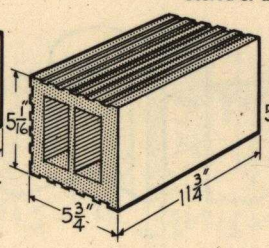


6TCA

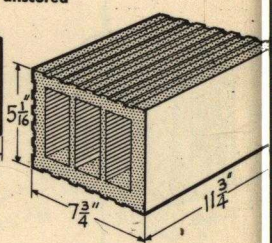


6TA
Also Available
6SA—2⅜" high

6" Stretcher — 8" Stretcher — Scored or unscored



6TC60
6TC60sm■*
6TC60su
6TC60gr (shown)



6TC80
6TC80sm■*
6TC80su
6TC80gr (shown)

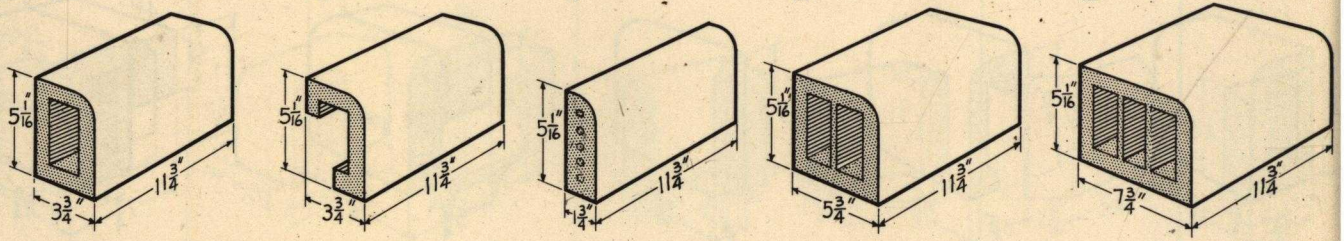
*Not made Ceramic or Clear Glaze

Note: Two faced units also available in 3¾" thickness (See page 22)

Shipments may be facilitated by simply ordering stretchers (Example 6T) thereby permitting the manufacturer to ship either the scored or smooth back stretchers or a mixture. If job conditions require that the back be of a certain type, they may be obtained by ordering the following: sm – unselected glazed back; su – unselected, unscored, unglazed back; gr – scored or grooved back. Type and direction of SCORING and CORING are optional with the manufacturer. In general, the manufacturer standardizes on either the horizontal or vertical coring and does not supply both.

BULLNOSE — SILL, CAP OR LINTEL

GROUP II — II — II — III — III



6T20 | **6T20B** | **6T20A** | **6T260** | **6T280**
2T280—same 3¾" long

SQUARE

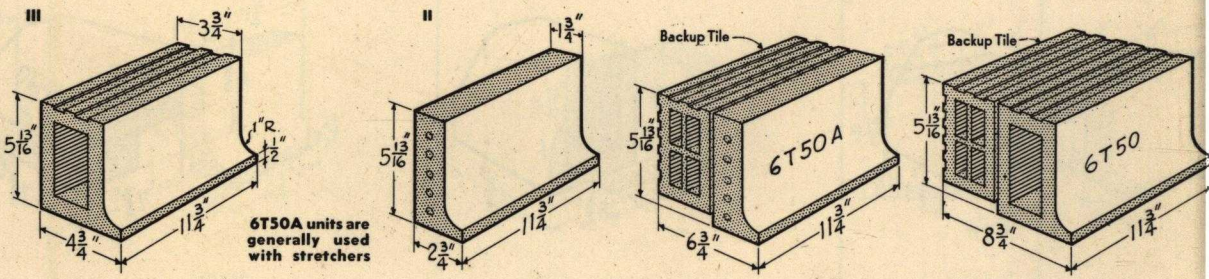
SAME AS ABOVE BUT SQUARE INSTEAD OF BULLNOSE

Group II — II — III — III

6T10 | **6T10A** | **6T160** | **6T180**

COVE BASE

GROUP III — II — Backup Tile — Backup Tile

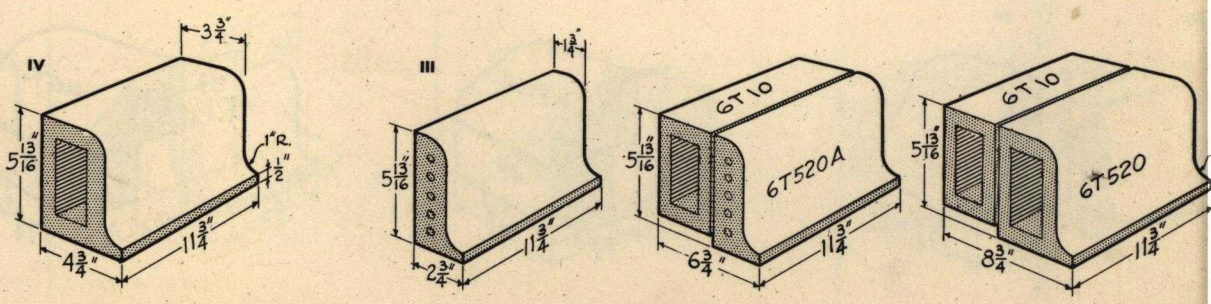


6T50A units are generally used with stretchers

6T50 | **6T50A**

ROUND TOP COVE BASE

GROUP IV — III



6T520■ | **6T520A■**

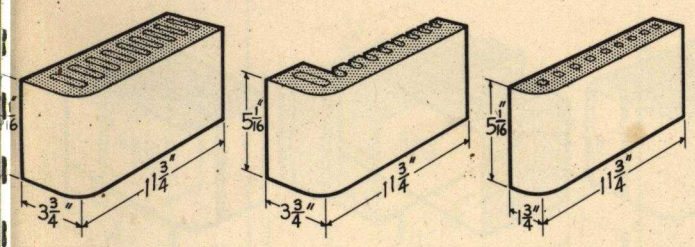
■ Not made unglazed

5⅓" x 12" FACE (6T Series)

BULLNOSE JAMB OR STARTER

4" RETURN OR SOAP (4" RETURN) | SOAP (2" RETURN)

GROUP I | I | I



6T4
3T4—5¾" length

6T4B

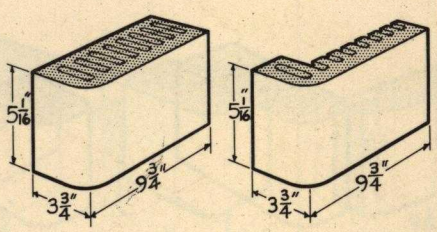
6T4A

An extra charge is made for cutting lengths or heights other than those shown or listed.
A power driven saw should be used for all cutting on the job.

BULLNOSE CORNER

4" RETURN | SOAP (4" RETURN)

I | I



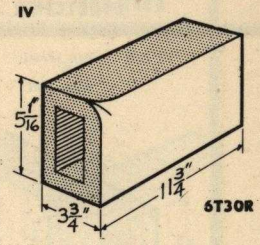
5T4
also available
5S4—2⅜" high

5T4B
also available
5S4B—2⅜" high

Note: Nominal dimensions are usually given for returns, reveals, lengths, etc., — 2" is actually 1¾", 4" is actually 3¾", 6" is actually 5¾", 8" is actually 7¾", 10" is actually 9¾", 12" is actually 11¾". However, all dimensions shown on shape drawings are actual.

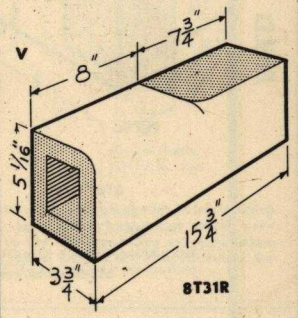
MITER

IV



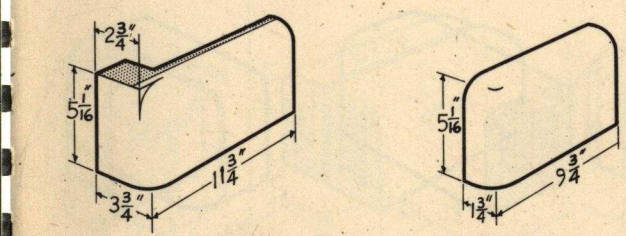
6T30R

V



8T31R

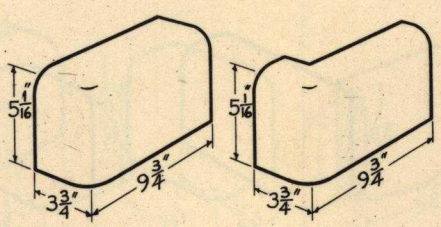
GROUP IV Starter | IV



6T24X2R

5T24AR

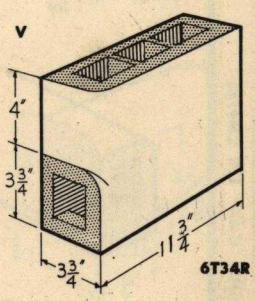
V | IV



5T24CR

5T24R

V

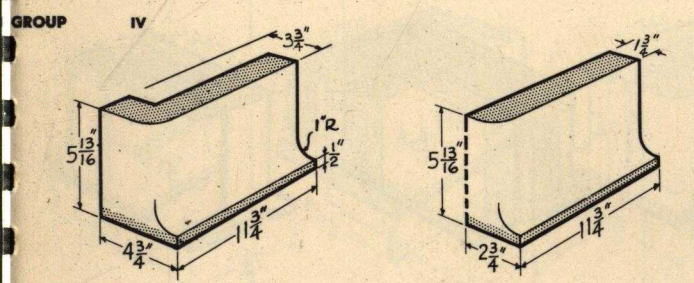


6T34R

Miters shown above may be used for sills, lintels, or jambs.

The above miters may be obtained in soaps with 3¾" return by adding the suffix "B" to the shape number.

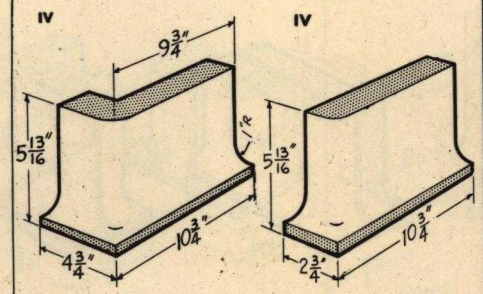
GROUP IV | IV



6T504R

Cut on the job from 6T504R

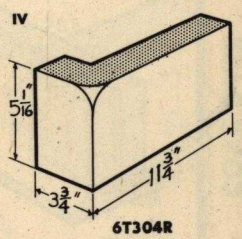
IV | IV



5T54R

5T54AR

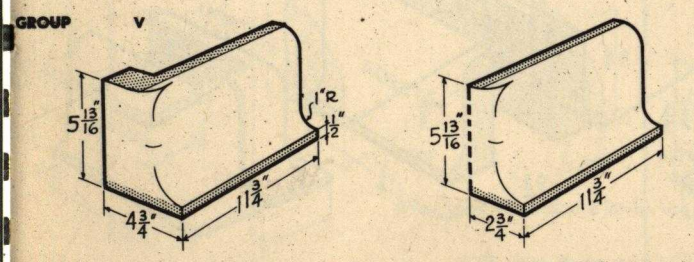
IV



6T304R

Use with slope sills and bullnose jambs.

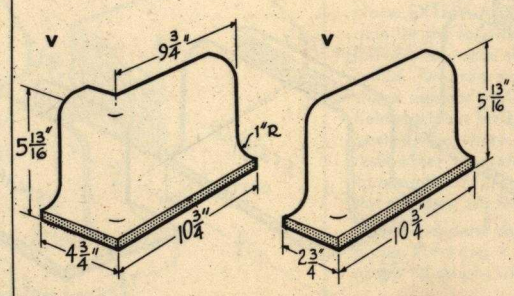
GROUP V



6T5204R■

Cut on the job from 6T5204R■

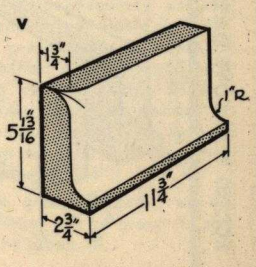
V | V



5T524R■

5T524AR■

V



6T530AR■

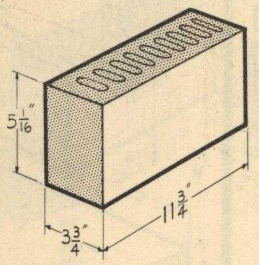
■ Not made unglazed

5⅓" x 12" FACE (6T Series)

4" WALL-GLAZED BOTH SIDES

FIELD

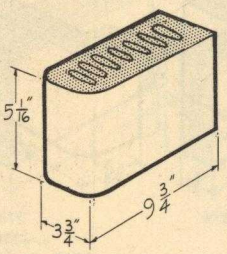
STRETCHER — GROUP III — Two faced Stretcher



6TD
also available
6SD—2⅜" high

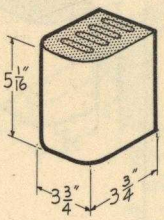
Note: Also available in horizontal cell construction—designated 6TCD.

FULL END — III



5T5

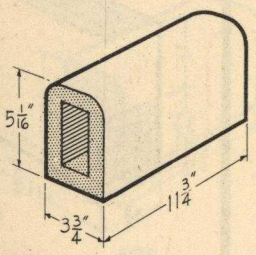
HALF END — III



2T5

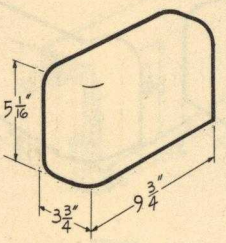
BULLNOSE
SILL, CAP OR LINTEL

STRETCHER — GROUP III



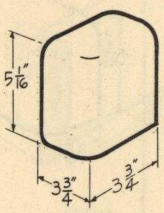
6T20D

FULL END — VI



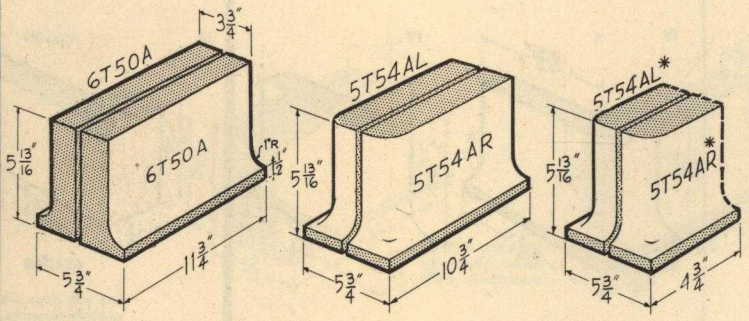
5T25

HALF END — VI

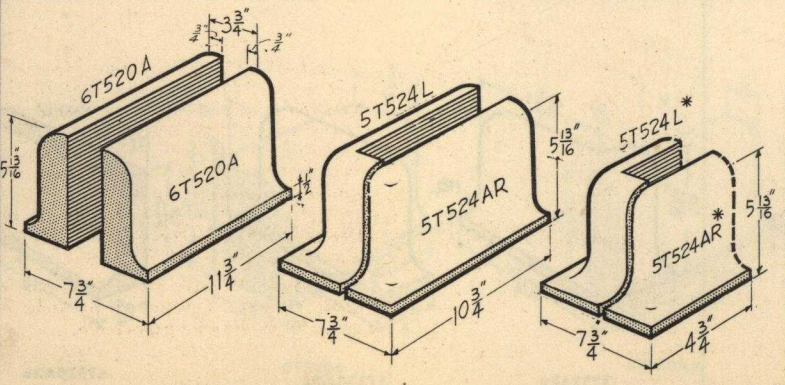


2T25

COVE BASE

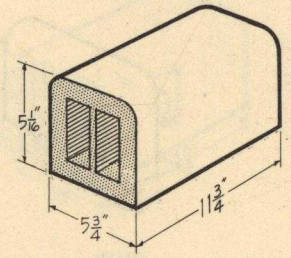


ROUND TOP COVE BASE



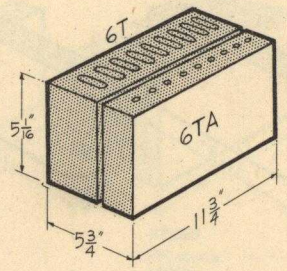
6" WALL-GLAZED BOTH SIDES

STRETCHER — GROUP IV

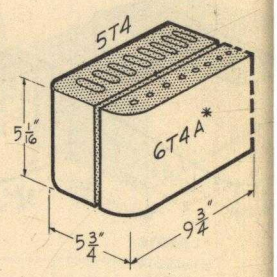


6T260D

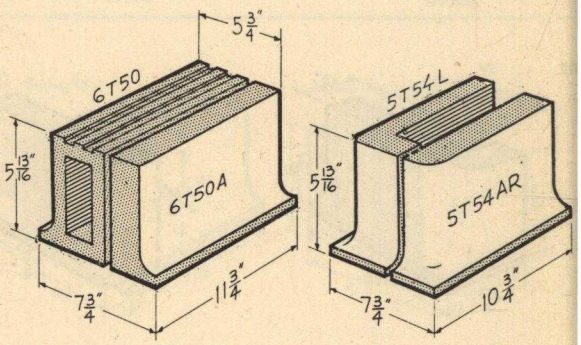
FULL END

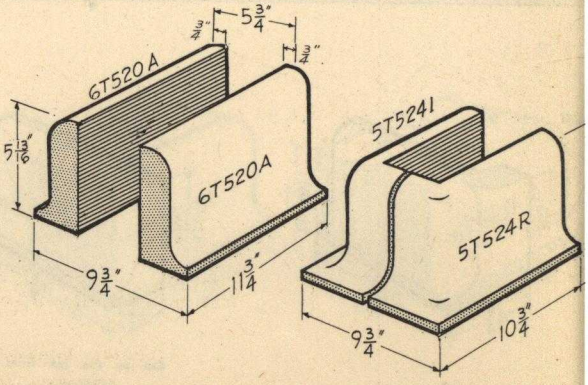


Note: Supplied as one unit in salt glazed and unglazed — selected for one face only.



*—means cut on the job from standard unit

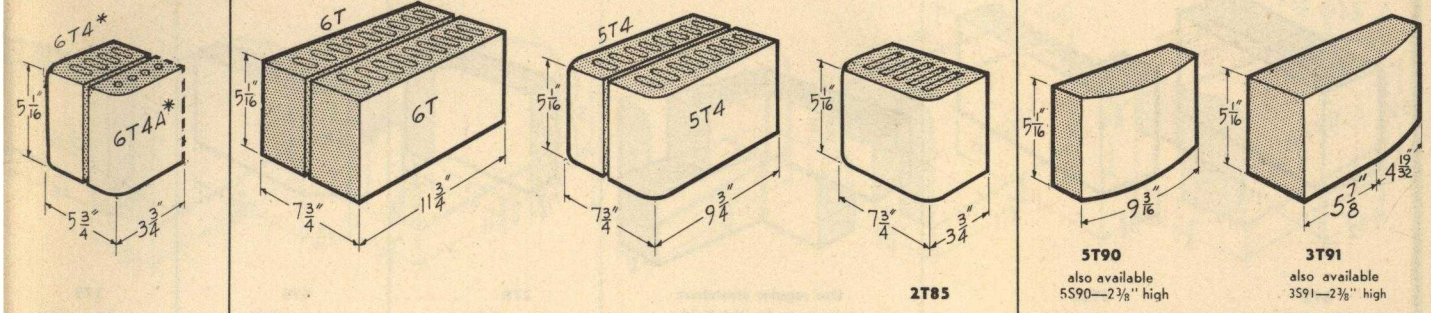




5⅓" x 12" FACE (6T Series)

6" WALL	8" WALL-GLAZED BOTH SIDES			STANDARD RADIALS	
HALF END	STRETCHER	FULL END	HALF END	STRETCHER	STARTER

GROUP — III — III — V



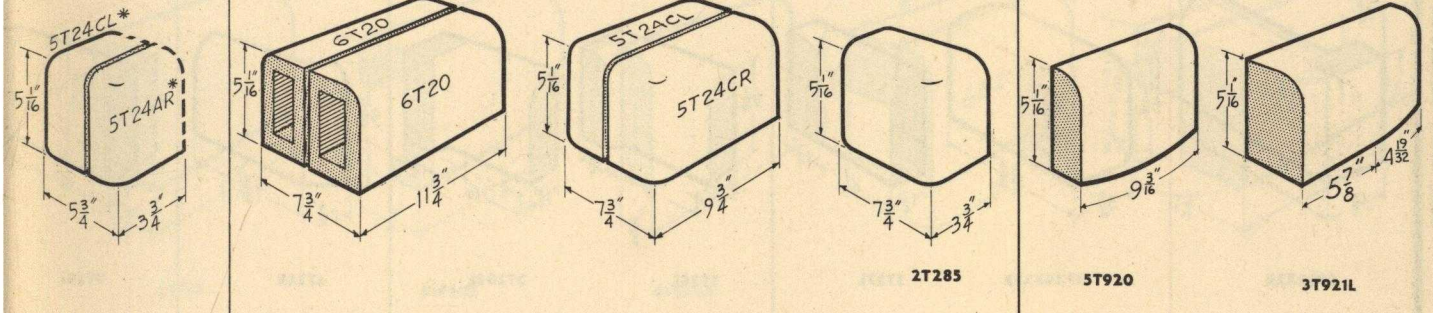
2T85

5T90 — also available 5S90—2⅜" high

3T91 — also available 3S91—2⅜" high

Note: INTERNAL radial shapes are similar in numbering and dimensioning. In ordering by number simply prefix the letter, "I," to the corresponding external shape number. Internal radial shapes are manufactured for a radius of 48 inches, as standard.

GROUP — VI — V — VII

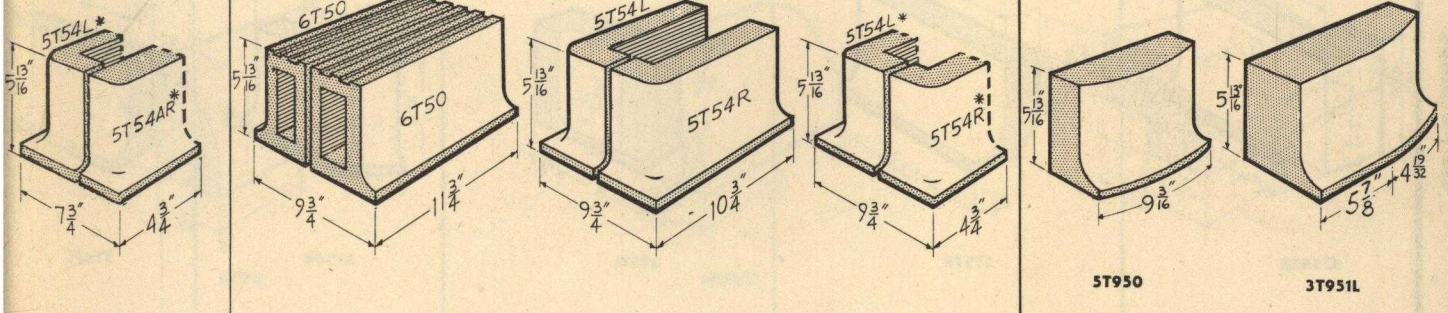


2T285

5T920

3T921L

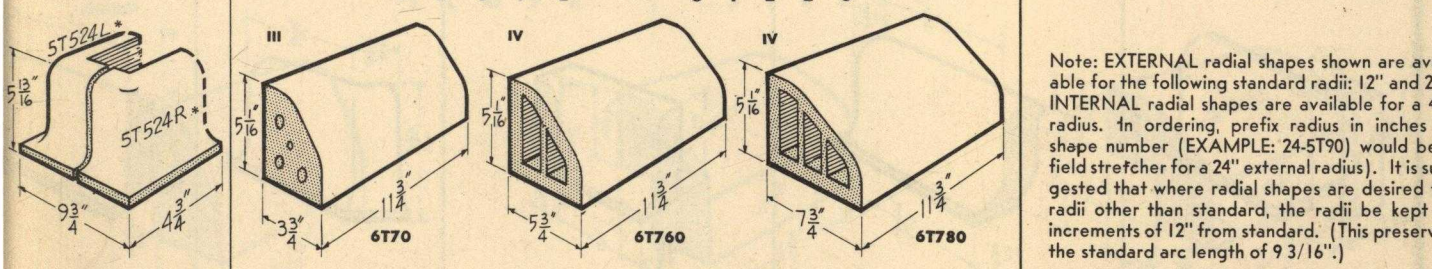
GROUP — V — VII



5T950

3T951L

GROUP — **SLOPE SILLS** — III — IV — IV



6T770

6T760

6T780

When used with bullnose jambs, use shape 6T304R as a starter

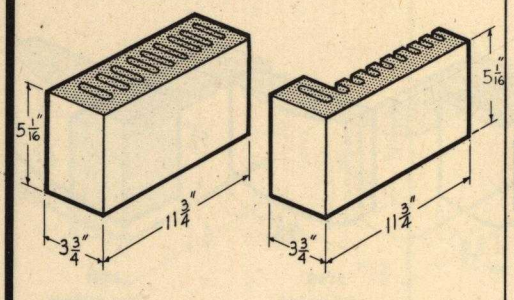
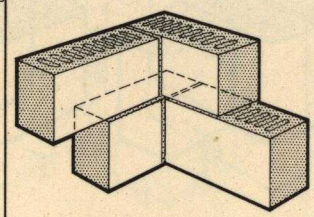
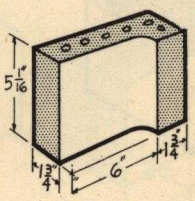
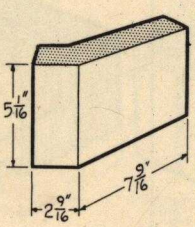
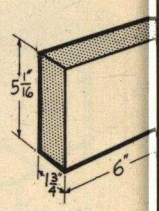
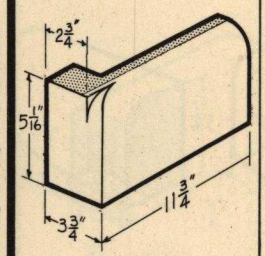
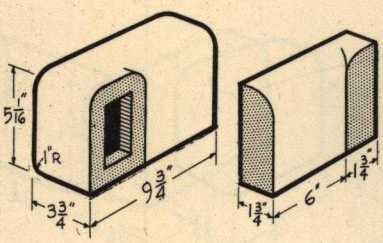
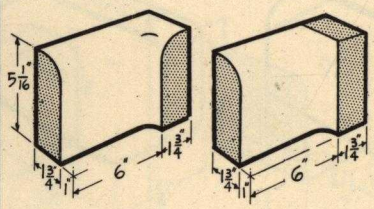
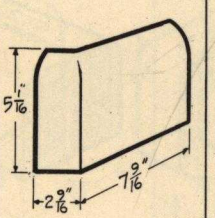
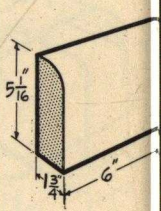
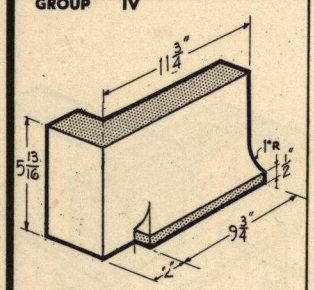
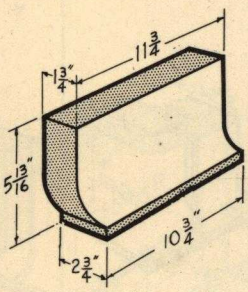
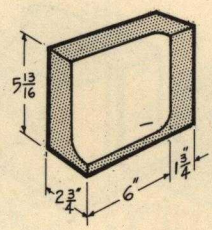
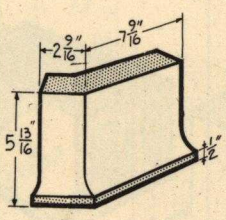
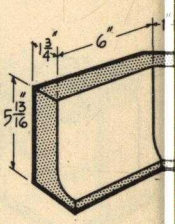
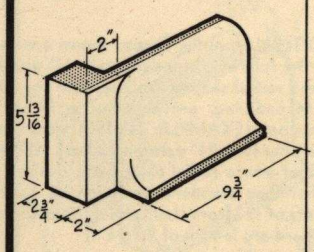
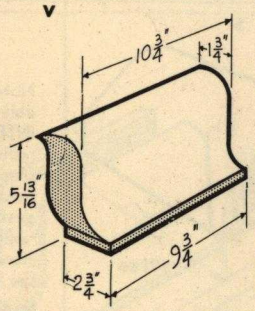
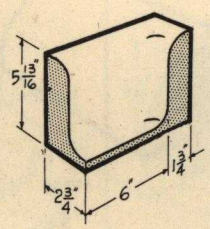
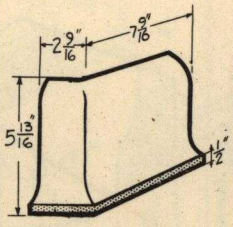
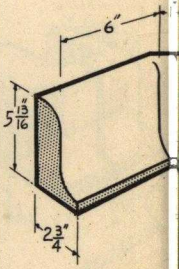
NOTE: Slope sills also available 6⅜" high—See Page 25

Slope sills also available 7¾" high—See Page 25

Note: EXTERNAL radial shapes shown are available for the following standard radii: 12" and 24". INTERNAL radial shapes are available for a 48" radius. In ordering, prefix radius in inches to shape number (EXAMPLE: 24-5T90) would be a field stretcher for a 24" external radius). It is suggested that where radial shapes are desired for radii other than standard, the radii be kept to increments of 12" from standard. (This preserves the standard arc length of 9 3/16".)

In non-standard radii, group III shapes will be group VI, group V shapes will be group X, and group VII shapes will be group XII.

5⅓" x 12" FACE (6T Series)

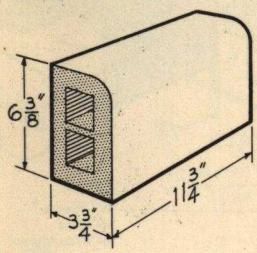
	QUOIN (Square) JAMB OR STARTER 4" RETURN OR SOAP (4" RETURN)	SQUARE INTERNAL CORNER	COVED INTERNAL CORNER	OCTAGONAL EXTERNAL CORNER	OCTAGON INTERNA CORNER
FIELD	GROUP I — I  6T2 3T2—5¾" length — 6T2B	4" OR 2" BED  Use regular stretchers or soaps for the field	I  3T8 also available 3S8—2⅜" high	I  4T6 also available 4S6—2⅜" high	I  3T9 also available 3S9—2⅜" high
BULLNOSE SILL, CAP, OR LINTEL	GROUP IV  6T22X2R	V — IV 4" Reveal — 2" Reveal  5T24X27R — 3T27L	IV — IV  3T28L — 3T208L	IV  4T26R	IV  3T29L
COVE BASE	GROUP IV  6T502R	IV  6T57R	IV  3T58L	IV  4T56R	IV  3T59L
ROUND TOP COVE BASE	GROUP V  6T5202R■	V  6T527R■	V  3T528L■	V  4T526R■	V  3T529L■

■ Not made unglazed

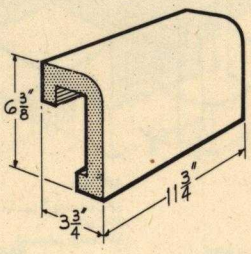
SUPPLEMENTAL SILL OR LINTEL STRETCHERS

4" BED OR REVEAL | 2" BED OR REVEAL | 6" REVEAL | 8" REVEAL

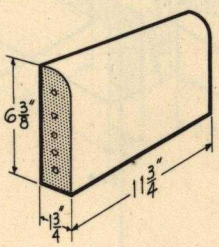
GROUP III



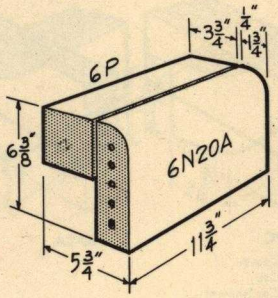
6N20

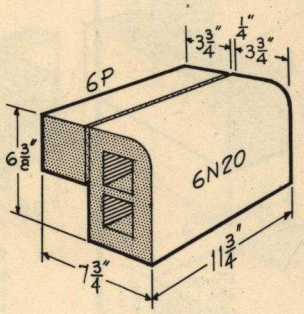


6N20B

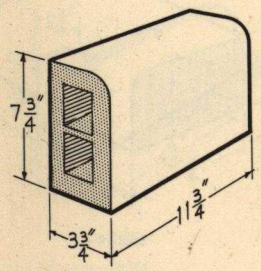


6N20A

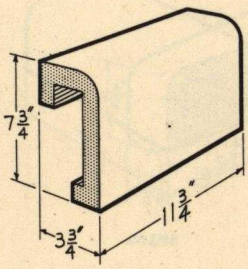




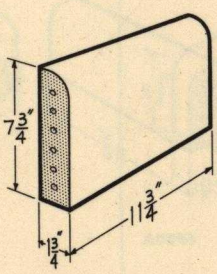
Group III



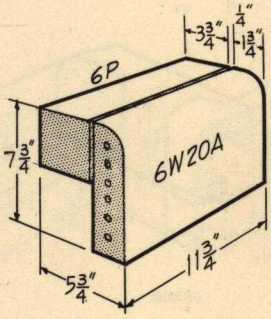
6W20

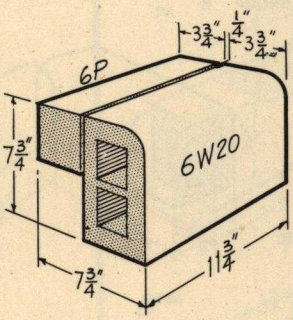


6W20B



6W20A

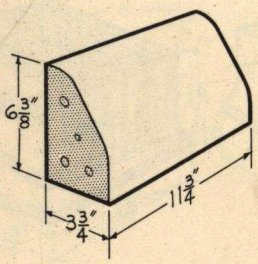




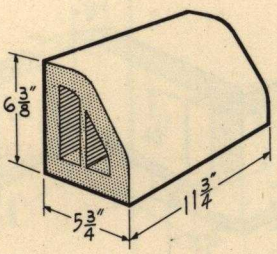
GROUP IV

SLOPE SILLS

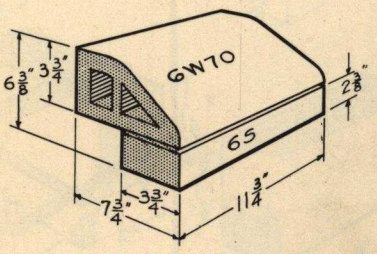
V



6N70

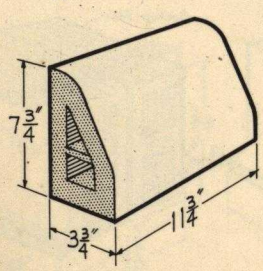


6N760

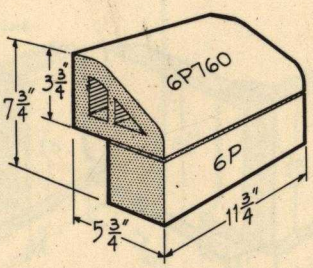


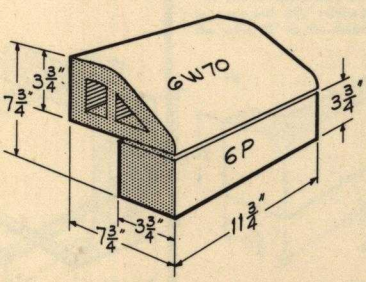
GROUP IV

SLOPE SILLS



6W70



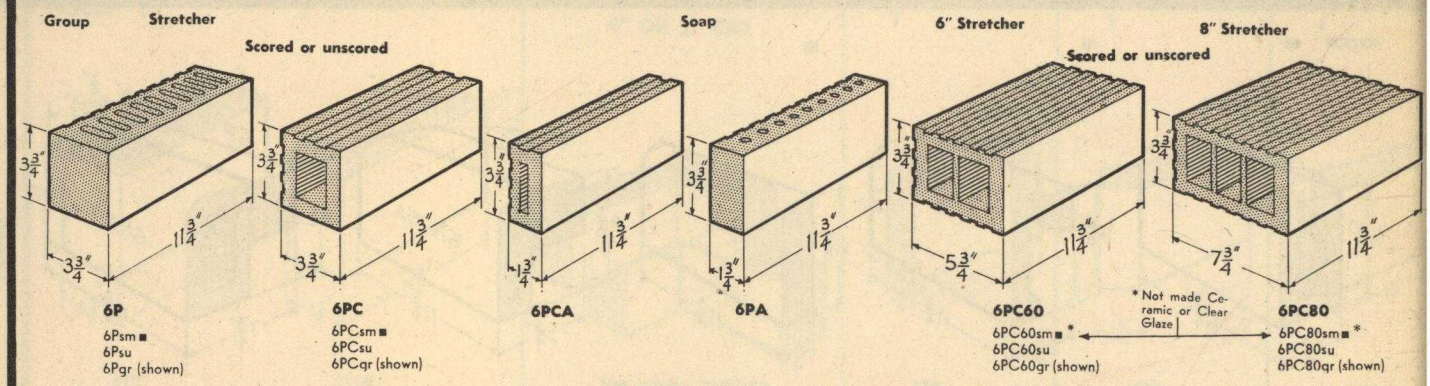


4" x 12" FACE (6P Series)

STRETCHER

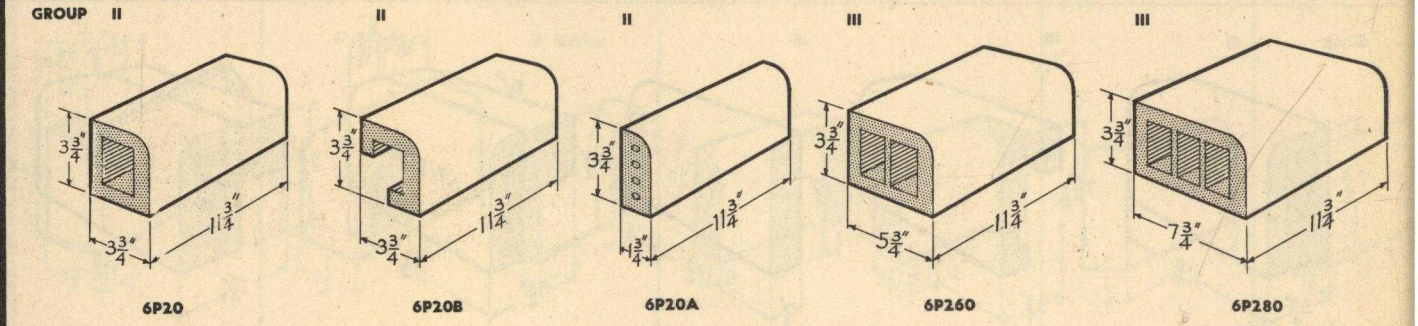
4" BED OR REVEAL	2" BED OR REVEAL	6" BED OR REVEAL	8" BED OR REVEAL

FIELD



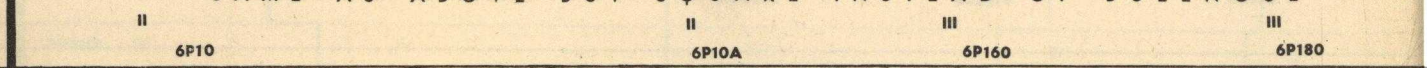
Shipments may be facilitated by simply ordering stretchers (Example 6P) thereby permitting the manufacturer to ship either the scored or smooth back stretchers or a mixture. If job conditions require that the back be of a certain type, they may be obtained by ordering the following: sm=unselected glazed back; su=unselected, unscored, unglazed back; gr=scored or grooved back. Type and direction of SCORING and CORING are optional with the manufacturer. In general, the manufacturer standardizes on either the horizontal or vertical coring and does not supply both.

BULLNOSE
SILL, CAP, OR LINTEL

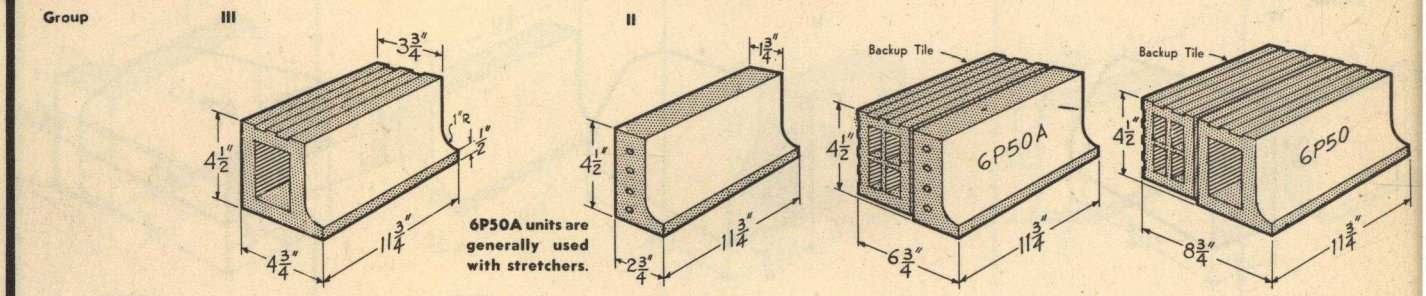


SQUARE

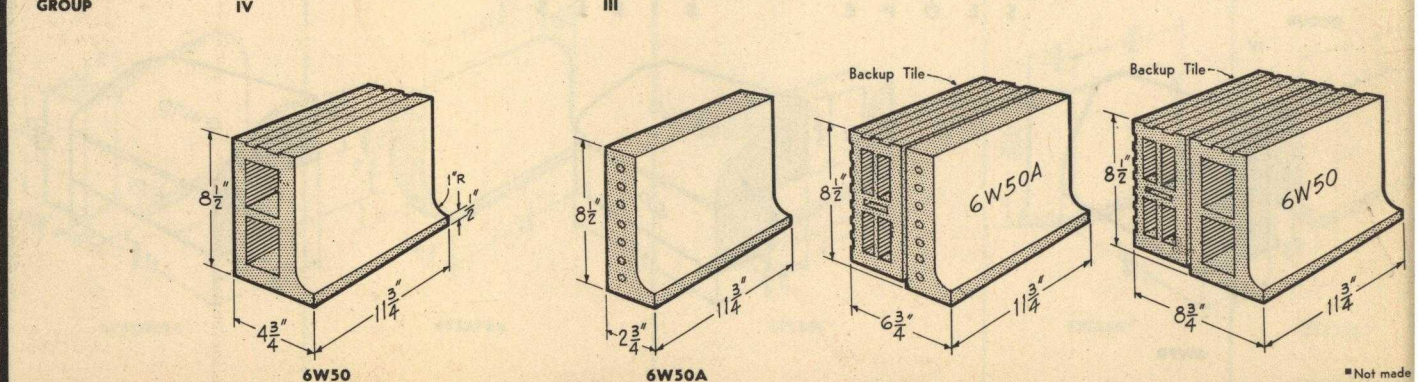
SAME AS ABOVE BUT SQUARE INSTEAD OF BULLNOSE



COVE BASE



COVE BASE

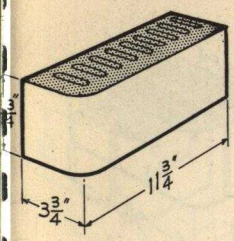


4" x 12" FACE (6P Series)

BULLNOSE JAMB OR STARTER

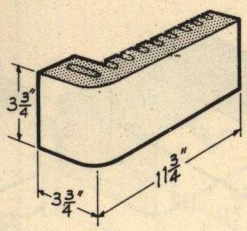
4" RETURN OR SOAP (4" RETURN)

GROUP I

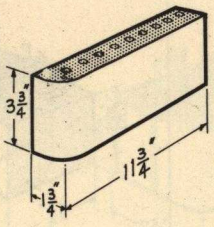


6P4
3P4—5¾" length

SOAP (2" RETURN)



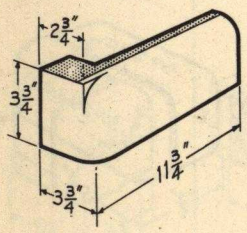
6P4B



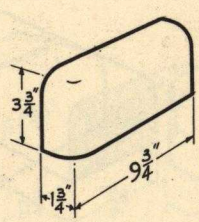
6P4A

An extra charge is made for cutting lengths or heights other than those shown or listed.
A power driven saw should be used for all cutting on the job.

GROUP IV

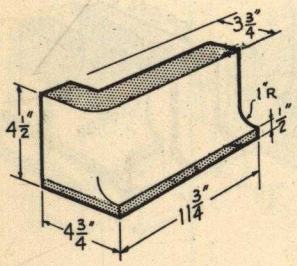


6P24X2R

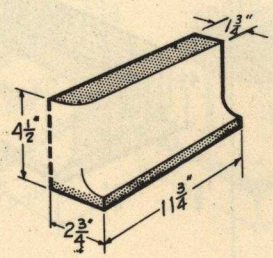


5P24AR

GROUP IV

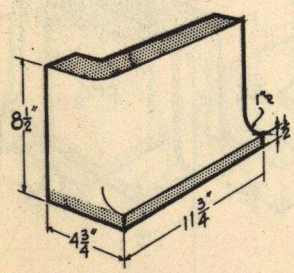


6P504R

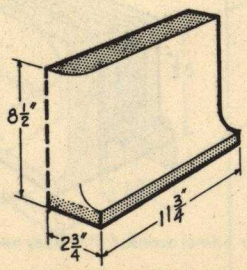


Cut on the job from
6P504R

GROUP V



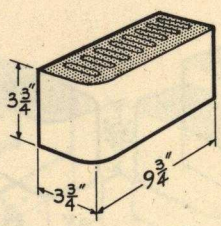
6W504R



Cut on the job from
6W504R

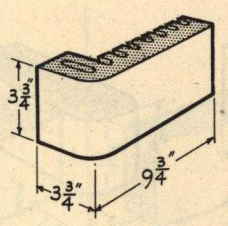
BULLNOSE CORNER

4" RETURN



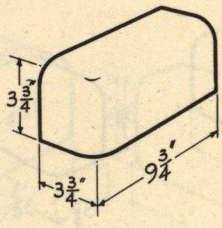
5P4

SOAP (4" RETURN)

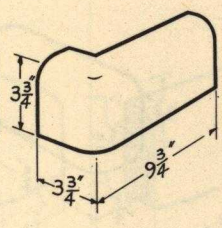


5P4B

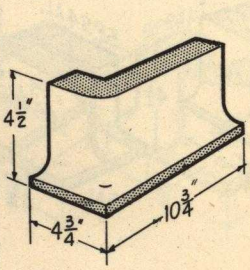
Note: Nominal dimensions are usually given for returns, reveals, lengths, etc., — 2" is actually 1¾", 4" is actually 3¾", 6" is actually 5¾", 8" is actually 7¾", 10" is actually 9¾", 12" is actually 11¾". However, all dimensions shown on shape drawings are actual.



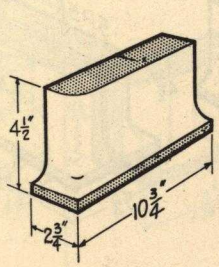
5P24CR



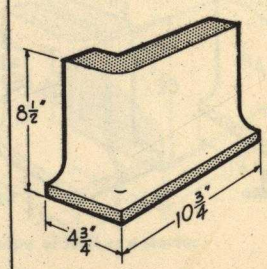
5P24R



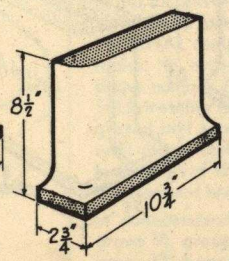
5P54R



5P54AR

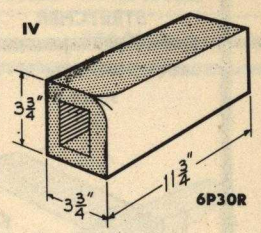


5W54R

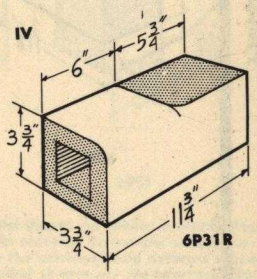


5W54AR

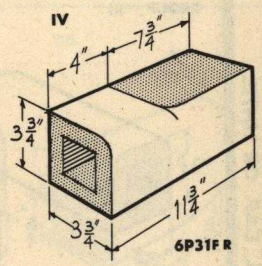
MITER



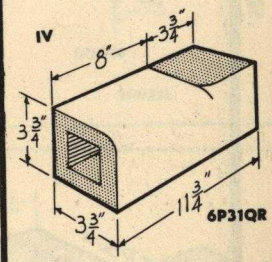
6P30R



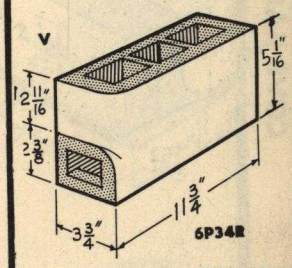
6P31R



6P31FR



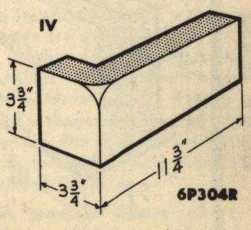
6P31QR



6P34R

Miters shown above may be used for sills, lintels, or jambs.

The above miters may be obtained in soaps with 3¾" return by adding the suffix "B" to the shape number.



6P304R

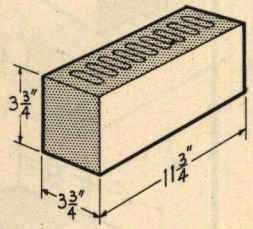
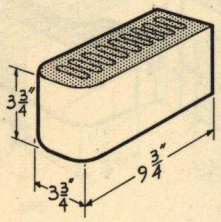
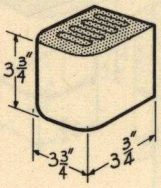
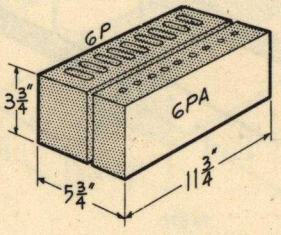
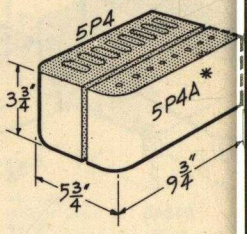
Use with slope sills and bullnose jambs.

4" x 12" FACE (6P Series)

4" WALL-GLAZED BOTH SIDES

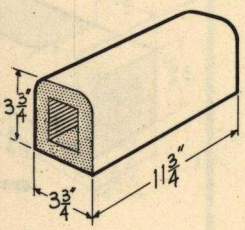
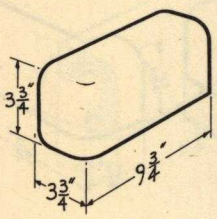
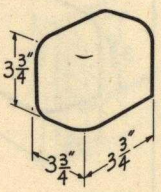
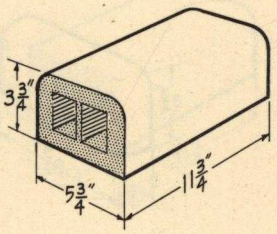
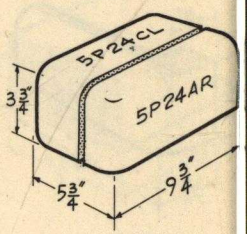
6" WALL-GLAZED BOTH SIDES

FIELD

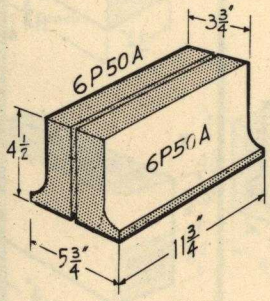
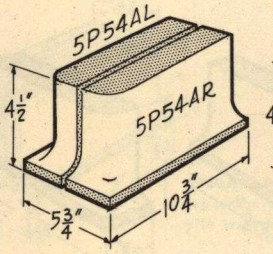
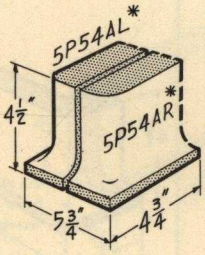
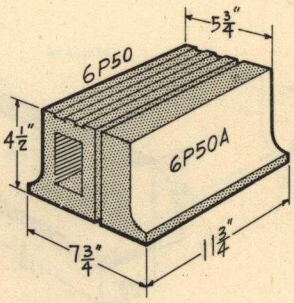
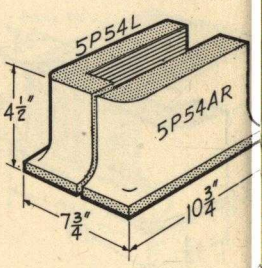
STRETCHER	FULL END	HALF END	STRETCHER	FULL END
GROUP Two faced Stretcher	III	III		
				
6PD	5P5	2P5	Note: Supplied as one unit in salt glazed and unglazed — selected for one face only.	

*—means cut on the job from standard unit

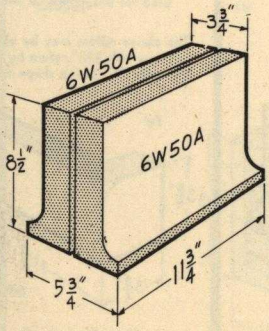
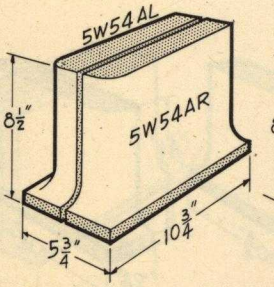
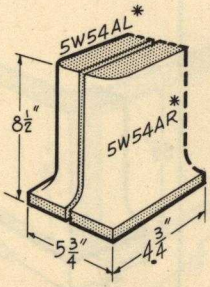
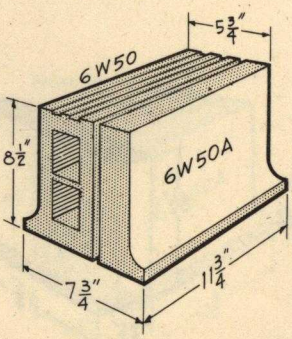
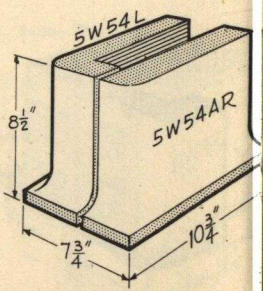
BULLNOSE SILL, CAP OR LINTEL

STRETCHER	FULL END	HALF END	STRETCHER	FULL END
GROUP III	VI	VI	IV	
				
6P20D	5P25	2P25	6P260D	

COVE BASE

STRETCHER	FULL END	HALF END	STRETCHER	FULL END
				
6P50A	5P54AL	5P54AL*	6P50	5P54L

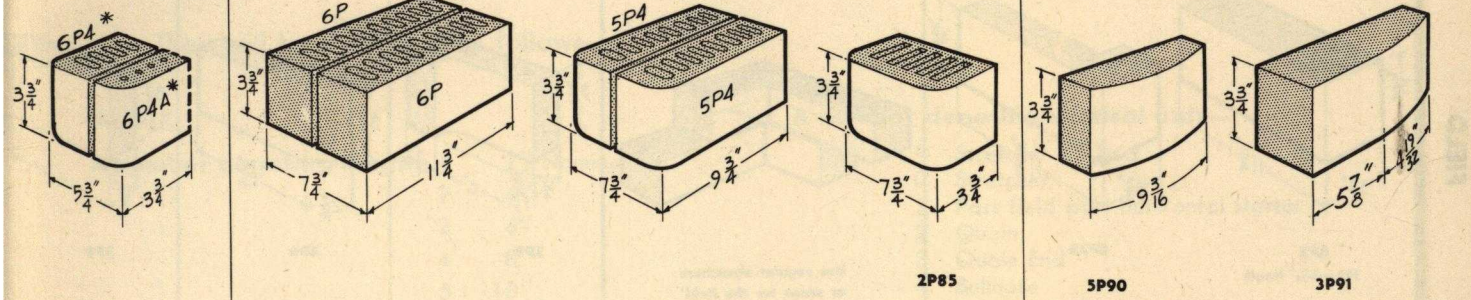
COVE BASE

STRETCHER	FULL END	HALF END	STRETCHER	FULL END
				
6W50A	5W54AL	5W54AL*	6W50	5W54L

4" x 12" FACE (6P Series)

6" WALL	8" WALL-GLAZED BOTH SIDES			STANDARD RADIALS	
HALF END	STRETCHER	FULL END	HALF END	STRETCHER	STARTER

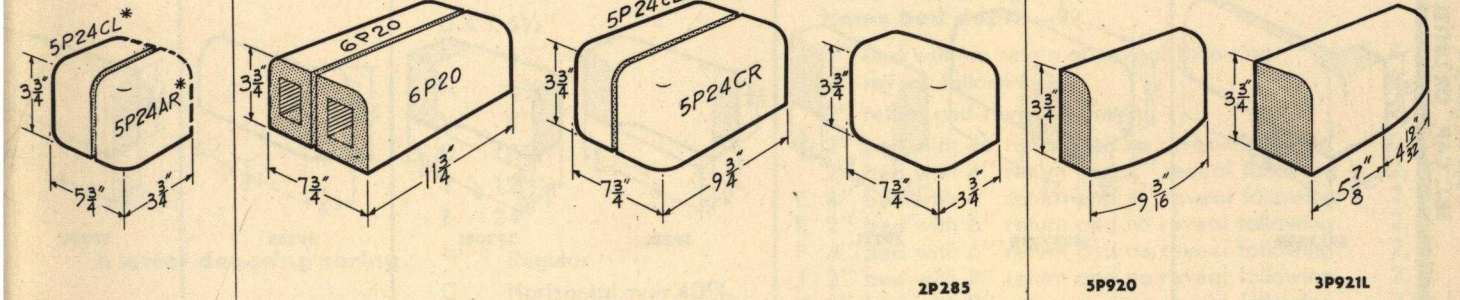
GROUP III V



2P85 5P90 3P91

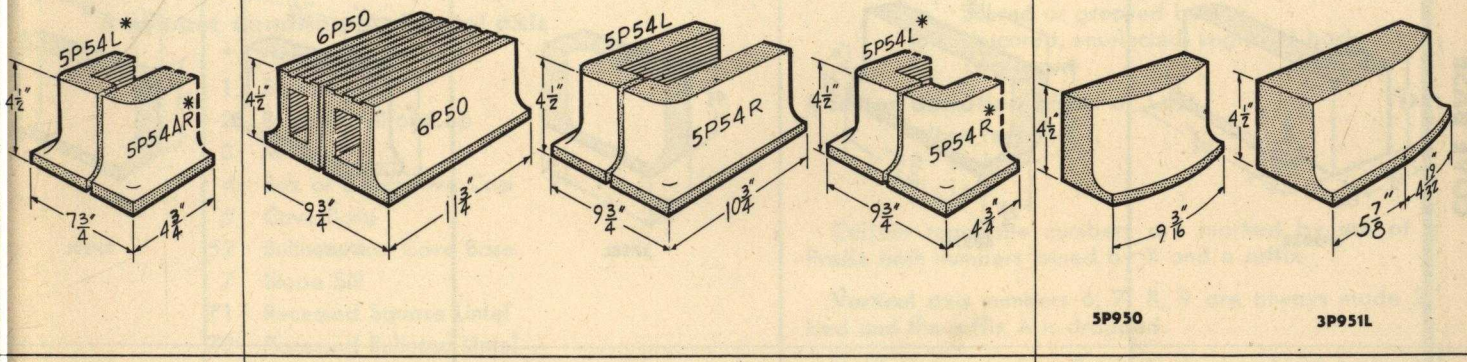
Note: INTERNAL radial shapes are similar in numbering and dimensioning. In ordering by number simply prefix the letter, "I," to the corresponding external shape number. Internal radial shapes are manufactured for a radius of 48 inches, as standard.

GROUP VI V VII



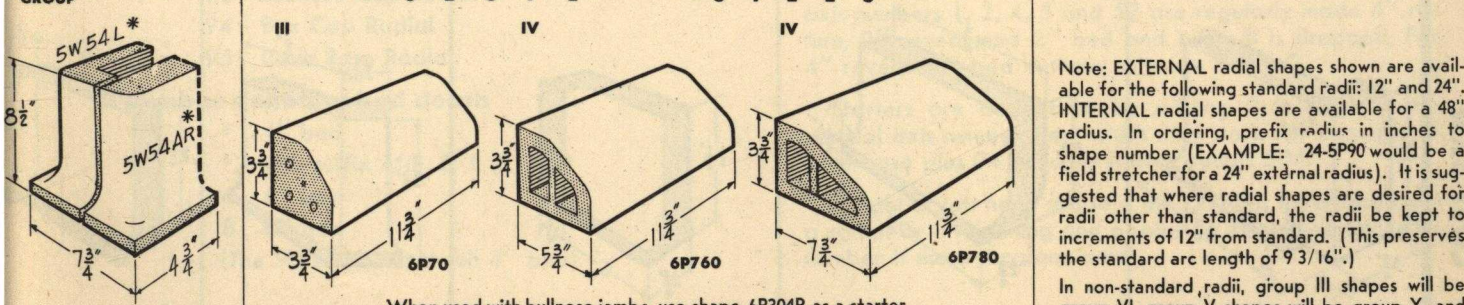
2P285 5P920 3P921L

GROUP V VII



5P950 3P951L

GROUP SLOPE SILLS III IV IV



When used with bullnose jambs, use shape 6P304R as a starter

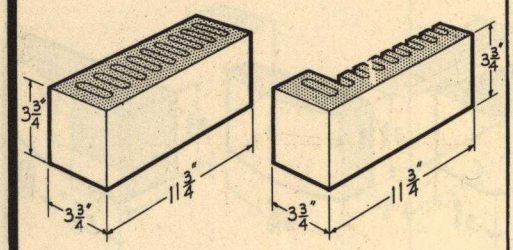
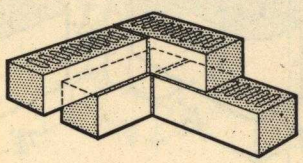
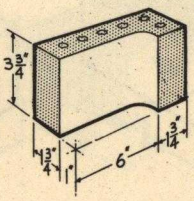
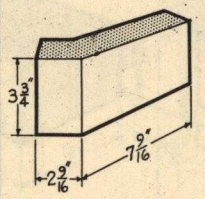
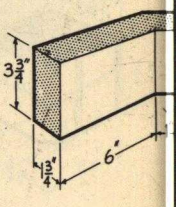
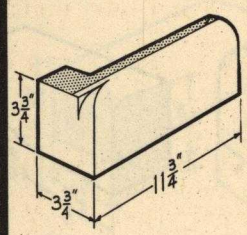
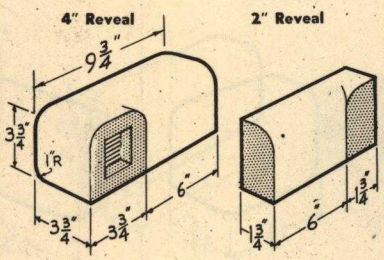
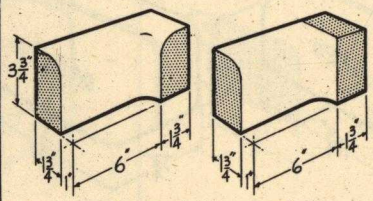
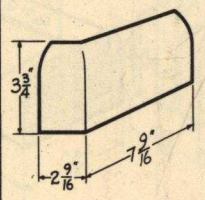
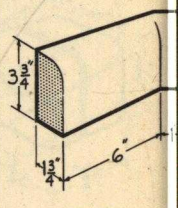
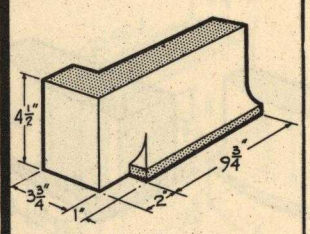
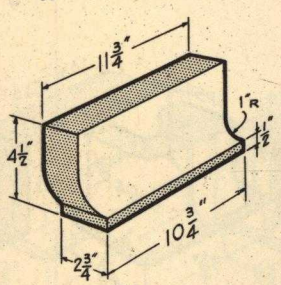
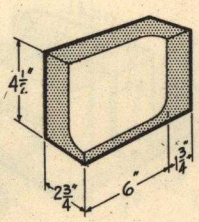
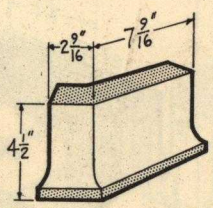
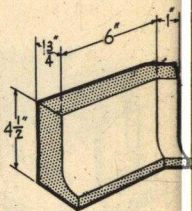
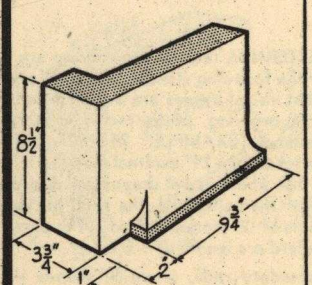
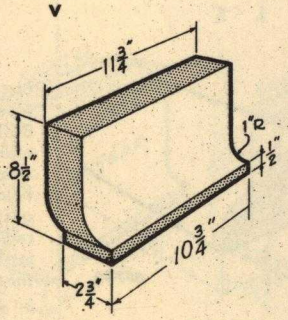
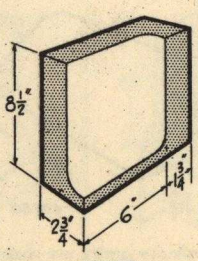
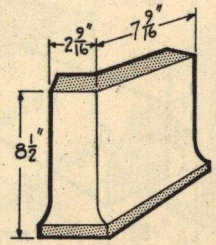
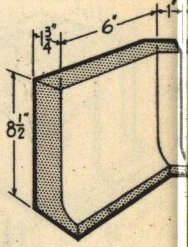
NOTE: Slope sills also available 6⅜" high—See Page 25

Slope sills also available 7¾" high—See Page 25

Note: EXTERNAL radial shapes shown are available for the following standard radii: 12" and 24". INTERNAL radial shapes are available for a 48" radius. In ordering, prefix radius in inches to shape number (EXAMPLE: 24-5P90 would be a field stretcher for a 24" external radius). It is suggested that where radial shapes are desired for radii other than standard, the radii be kept to increments of 12" from standard. (This preserves the standard arc length of 9 3/16".)

In non-standard radii, group III shapes will be group VI, group V shapes will be group X, and group VII shapes will be group XII.

4" x 12" FACE (6P Series)

	QUOIN (Square) JAMB OR STARTER 4" RETURN OR SOAP (4" RETURN)	SQUARE INTERNAL CORNER	COVED INTERNAL CORNER	OCTAGONAL EXTERNAL CORNER	OCTAGONAL INTERNAL CORNER
FIELD	GROUP I — I  6P2 3P2—5¾" length 6P2B	4" OR 2" BED  Use regular stretchers or soaps for the field	I  3P8	I  4P6	I  3P9
BULLNOSE SILL, CAP, OR LINTEL	GROUP IV  6P22X2R	V — IV 4" Reveal — 2" Reveal  5P24X27R — 3P27L	IV — IV  3P28L — 3P208L	IV  4P26R	IV  3P29L
COVE BASE	GROUP IV  6P502R	IV  6P57R	IV  3P58L	IV  4P56R	IV  3P59L
COVE BASE	GROUP V  6W502R	V  6W57R	V  3W58L	V  4W56R	V  3W59L

NOMENCLATURE OF SHAPE NUMBERS

Shape numbers consist of a prefix denoting face size and coring, a shape number denoting horizontal axis number, bed depth and vertical axis number and a suffix denoting return, reveal, back face and right and left.

They will be arranged as follows:

PREFIX

A number denoting length.

1	2″ Nominal
2	4″
3	6″
4	8″
5	10″
6	12″
7	14″
8	16″
9	18″

A letter denoting height..

S	2⅔″ Nominal
P	4″
D & T	5⅓″
R	6″
N	6⅔″
W	8″
U	10⅔″
Y	12″
Z	24″

A letter denoting coring...

*	Regular
C	Horizontal over 40%
V	Vertical over 25%

NUMBER

A number denoting horizontal axis

*	Field—(No reveal)
1	Square Sill
2	Bullnose Sill or Cap
3	Mitre
4	Box or Decorative Cap
5	Cove Base
52	Bullnose top Cove Base
7	Slope Sill
71	Recessed Square Lintel
72	Recessed Bullnose Lintel
92	Bullnose Cap Radial
94	Box Cap Radial
95	Cove Base Radial

A number denoting bed depth

*	4″ bed
*	with suffix A, B, E, J, 2″ bed
6	6″ bed
8	8″ bed

(The 90 series is not full 4″ bed)

A number denoting vertical axis—

*	Stretcher 4″ bed
0	Stretcher
1	Part field part horizontal starter
2	Quoin
3	Quoin End
4	Bullnose
5	Bullnose End
6	External Octagon
7	Internal Square
8	Internal Coved
9	Internal Octagon

SUFFIX

A letter denoting return and reveal and sometimes bed depth—

A	2″ bed with no return or reveal following	*, 6, 7, 8, 9
	2″ reveal following	0
	2″ return and reveal following	2, 4
B	2″ bed with 4″ return and no reveal following	0
	2″ bed with 4″ return and 2″ reveal following	2, 4
C	4″ bed with 4″ return and 4″ reveal following	2, 4
E	2″ bed with 6″ return and no reveal following	2, 4
F	4″ bed with 6″ return and no reveal following	2, 4
J	2″ bed with 8″ return and no reveal following	2, 4
K	4″ bed with 8″ return and no reveal following	2, 4

A letter or letters denoting back face

*	Any type
sm	Smooth glaze back, unselected back
gr	Scored or grooved back
su	Unscored, unselected, unglazed back
D	Two faced

A letter denoting Right or Left

When required

R	Right
L	Left

Certain composite numbers are marked by use of a Prefix both numbers joined by X and a suffix.

Vertical axis numbers 6, 7, 8, 9 are always made 2″ bed and the suffix A is dropped.

Vertical axis numbers 2 and 4 when used with horizontal axis numbers 1, 2, 4, 5 and 52 are regularly made 4″ return, 2″ reveal and 2″ bed and suffix B is dropped. For 4″ reveal and bed in these units use Suffix C.

Starters are designated by adding 0 in front of the vertical axis number from which they start. For example, 5 cove base plus 04 bullnose starter equals 504.

A right or left hand shape is the long leg extending from a corner or an opening and applies to the last vertical axis number if more than one used.

*Denotes blank.

8"x16" FACE ("8W" Series)

STRETCHER

4" BED OR REVEAL

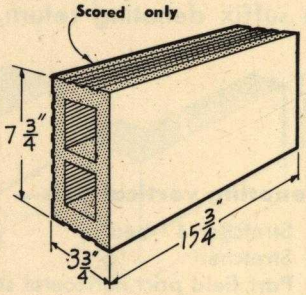
2" BED OR REVEAL

QUOIN (SQUARE) JAMB OR STARTER

4" RETURN OR SOAP (4" RET

FIELD

Group — Stretcher Scored only



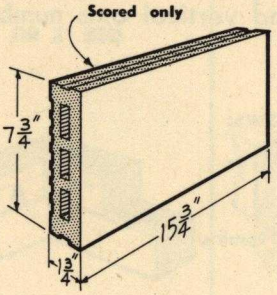
8W

4W—7¾" length

Also Available

8P—3¾" height

Soap Scored only



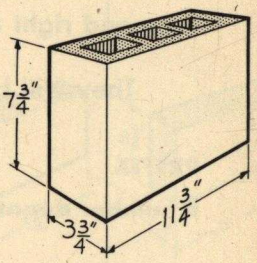
8WA

4WA—7¾" length

Also Available

8PA—3¾" height

Group I



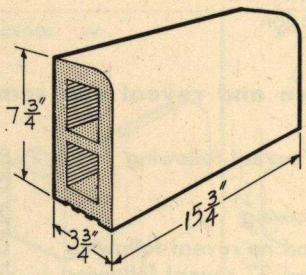
6W2

5W2—9¾" length

2W2—3¾" length

BULLNOSE SILL, CAP OR LINTEL

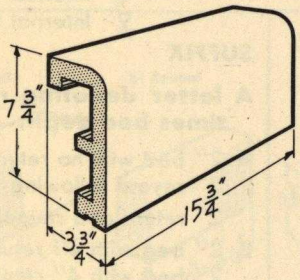
Group II



8W20

4W20—7¾"length (Group I)

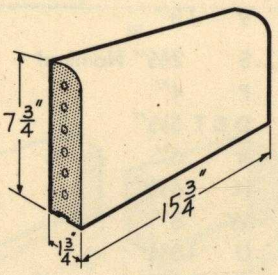
Group II



8W20B

4W20B—7¾" length (Group I)

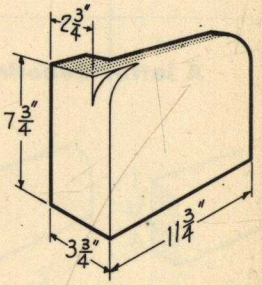
Group II



8W20A

4W20A—7¾" length (Group I)

Group IV

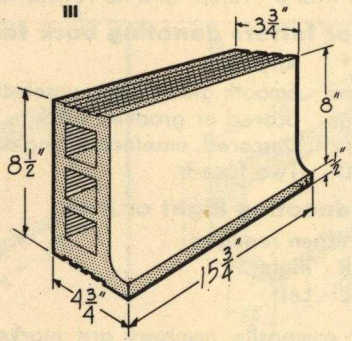


6W22X2R

6W24X2R—same, bullnose corner

COVE BASE

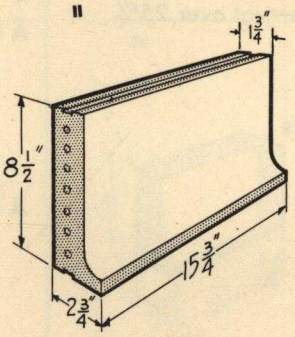
Group III



8W50

4W50—7¾" length

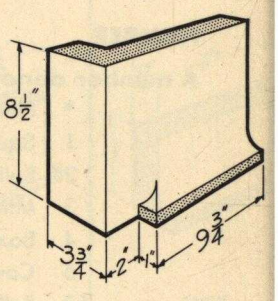
Group II



8W50A

4W50A—7¾" length

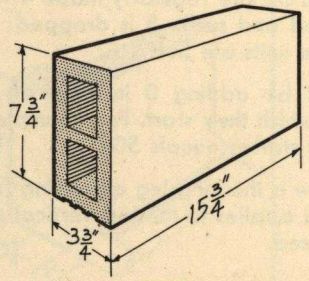
Group IV



6W502R

SQUARE SILL, CAP OR LINTEL

Group II



8W10

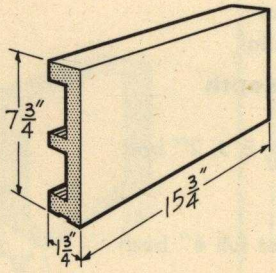
4W10—7¾" length

An extra charge is made for cutting lengths or heights other than those shown or listed.

A power driven saw should be used for all cutting on the job.

Note: Nominal dimensions are usually given for returns, reveals, lengths, etc.—2" is actually 1¾", 4" is actually 3¾", 6" is actually 5¾", 8" is actually 7¾", 10" is actually 9¾", 12" is actually 11¾". However, all dimensions shown on shape drawings are actual.

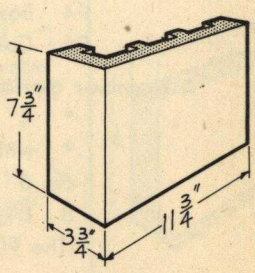
Group II



8W10A

4W10A—7¾" length

Group I



6W2B

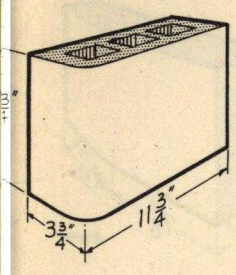
5W2B—9¾" length

8"x16" FACE ("8W" Series)

BULLNOSE JAMB AND CORNER

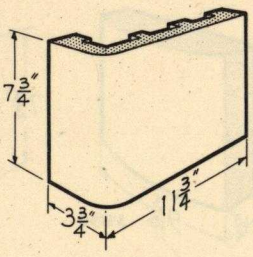
4" RETURN OR SOAP (4" RETURN)

Group I



6W4

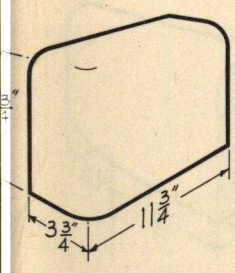
5W4—9¾" length
2W4—3¾" length



6W4B

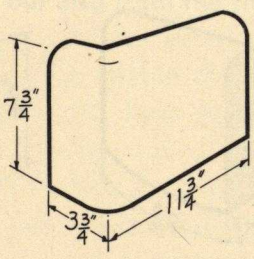
5W4B—9¾" length
2W4B—3¾" length

Group V



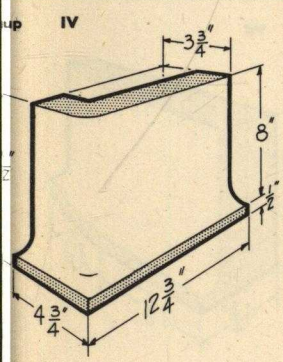
6W24CR

Group IV



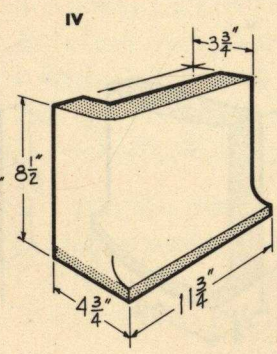
6W24R

Group IV



6W54R

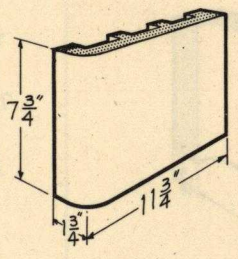
Group IV



6W504R

SOAP (2" RETURN)

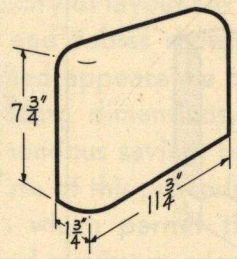
Group I



6W4A

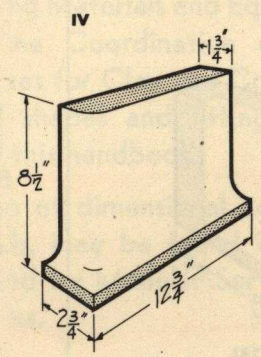
5W4A—9¾" length
2W4A—3¾" length

Group IV



6W24AR

Group IV

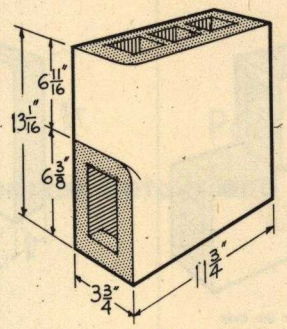


6W54AR

MITER

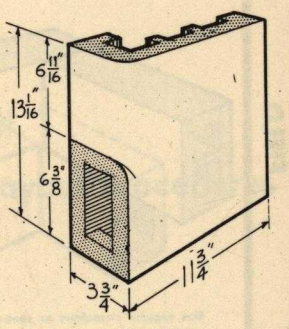
4" RETURN OR REVEAL

Group V



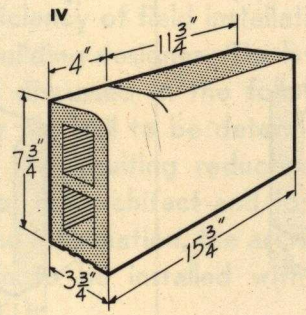
6W34R

Group V



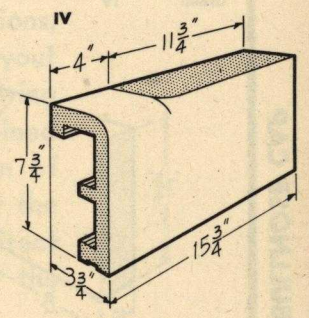
6W34BR

Group IV



8W31MR

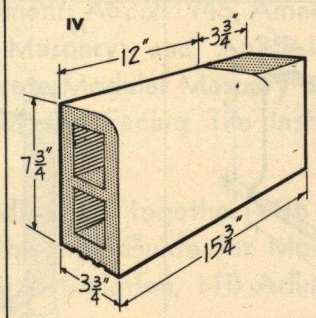
Group IV



8W31MBR

8W31MAR—same, 1¾" reveal

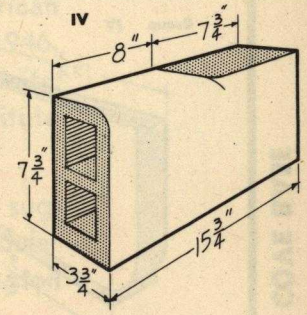
Group IV



8W31QR

Also Available
8W31QBR—same; soap, 3¾" reveal
8W31QAR—soap, 1¾" reveal

Group IV



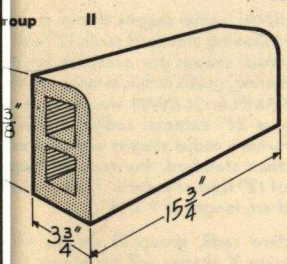
8W31R

Also Available
8W31BR—same; soap, 3¾" reveal
8W31AR—soap, 1¾" reveal

SUPPLEMENTAL SILL OR LINTEL STRETCHERS

4" BED OR REVEAL

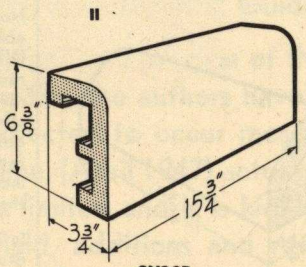
Group II



8N20

4N20—7¾" length
Also Available
8P20—3¾" height

Group II

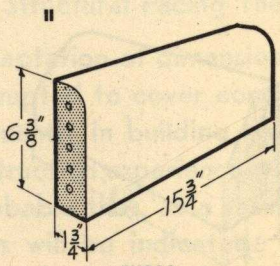


8N20B

4N20B—7¾" length
Also Available
8P20B—3¾" height

2" BED OR REVEAL

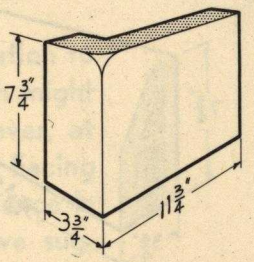
Group II



8N20A

4N20A—7¾" length
Also Available
8P20A—3¾" height

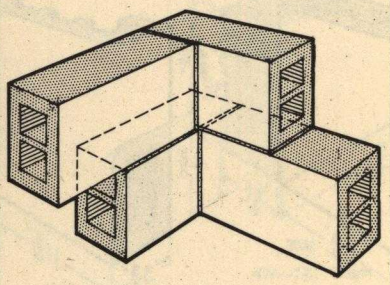
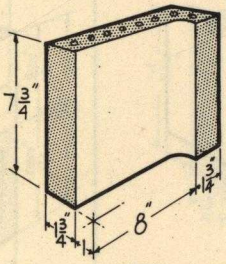
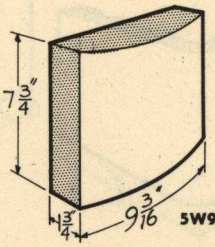
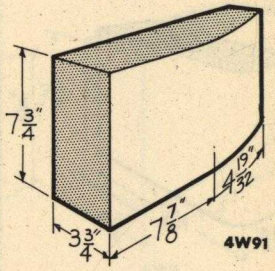
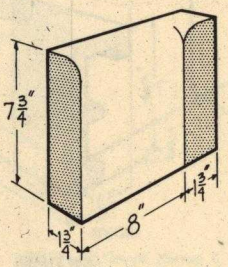
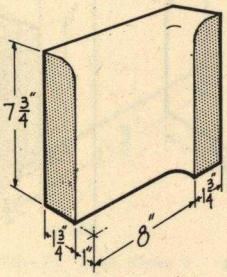
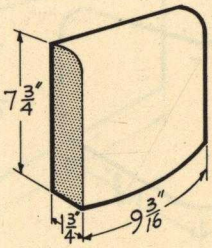
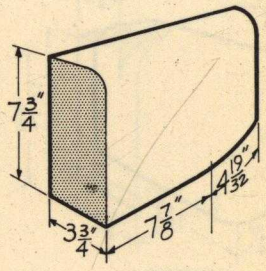
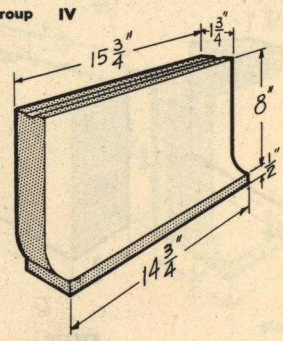
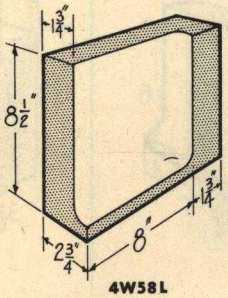
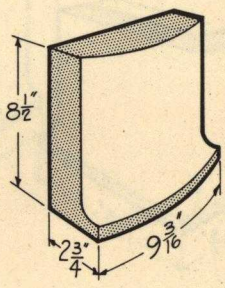
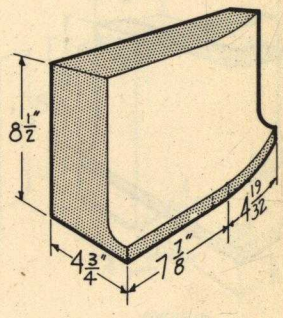
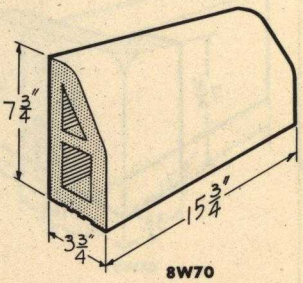
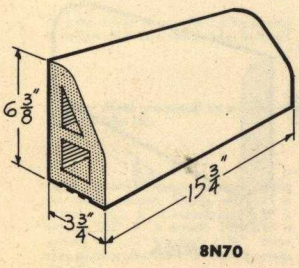
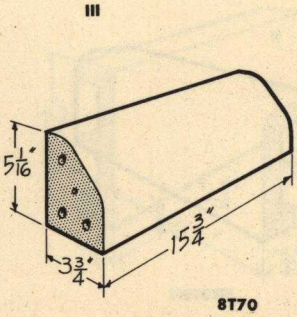
Group IV



6W304R

Use with slope sills and bullnose jambs.

8"x16" FACE ("8W" Series)

	SQUARE INTERNAL CORNER	COVED INTERNAL CORNER	STANDARD RADIALS	
			STRETCHER	STARTER
FIELD	 Use regular stretchers or soaps for the field	Group I  4W8	III  5W90	V  4W91
BULLNOSE CAP	Group IV  4W27L	IV  4W28L	V  5W920	VII  4W921L
COVE BASE	Group IV  8W57R	IV  4W58L	V  5W950	VII  4W951L
SLOPE SILLS	Group III  8W70 4W70—7¾" length	III  8N70 4N70—7¾" length	III  8T70 4T70—7¾" length Also available 8P70—3¾" height	

Note: INTERNAL radial shapes are similar in numbering and dimensioning. In ordering by number simply prefix the letter, "I", to the corresponding external shape number. Internal radial shapes are manufactured for a radius of 48 inches, as standard.

Note: EXTERNAL radial shapes shown are a able for the following standard radii: 12" and INTERNAL radial shapes are available for a radius. In ordering, prefix radius in inches to s number (EXAMPLE: 24-5W90 would be a stretcher for a 24" external radius). It is gested that where radial shapes are desire radii other than standard, the radii be ke increments of 12" from standard. (This pres the standard arc length of 9 3/16".)

In non-standard radii, group III shapes wi group VI, group V shapes will be group X group VII shapes will be group XII.

Part III

Modular Details and Layout Procedures

INTRODUCTION

The purpose of this handbook is to assist the architect and builder in realizing the economies which result from the use of Modular Facing Tile. These economies derive not only from the efficiency of field installations, but also from the simplicity of layout for the building designer. The layout procedure, drawings, and tables shown and discussed in the following pages enable the finished appearance of any tile wall to be determined directly from the building dimensions, and the resulting reduction of drawings effect a tremendous saving, both for the architect and for the supplier. Through the use of this procedure and information, the architect can select dimensions which permit the tile to be installed with the desired appearance and maximum economy.

The details and layout procedures presented are based upon the American Standards; A62.1-1945, American Standard Basis for the Coordination of Dimensions of Building Materials and Equipment; A62.2-1945, American Standard Basis for the Coordination of Masonry; and A62.3-1946, American Standard Sizes for Clay and Concrete Modular Masonry Units; also on the standard shapes and fittings of the Facing Tile Institute illustrated in Part II of this handbook.

A complete discussion of dimensional coordination, together with suggested modular details, may be found in the A62 Guide for Modular Coordination, published by Modular Service Association, 110 Arlington Street, Boston 16, Mass.

The A62 Guide is the most comprehensive treatise on the application of modular coordination to building layout that has been published and it is recommended most highly as an authoritative reference.
The following pages have been prepared to supplement and amplify Chapter 3 of the A62 Guide on Structural Facing Tile.

In this first presentation of the adaptation of dimensional coordination to facing tile, the authors have attempted to cover conditions which might be expected to occur most frequently in building layout. However, at this time, (April 1947) actual construction experience with Modular Facing Tile is limited and it is highly probable that, as a result of experience in the field, additions and revisions will be indicated. Constructive suggestions for such changes will be welcomed by the authors.

TERMS

The following definitions of terms commonly used in any discussion of modular coordination are included to assist the reader:

Referencing. Assembly drawings, details and building layouts are all related or "referenced" to the standard grid. Referencing to the standard 4" grid provides a direct correlation between small scale drawings and large scale details.

A Reference Dimension is a dimension between a part or surface and a grid line of the standard grid.

Grid Position is the relationship to the standard grid established by reference dimensions. Any change in the reference dimensions for a physical part or assembly of parts creates a different grid position.

A Modular Detail is any assembly drawing or detail for which a single grid position has been established by reference dimensions.

A Nominal Masonry Unit is equal to the actual unit, plus the thickness of one mortar joint in all three dimensions of the unit.

A Nominal Face is any face of a nominal masonry unit.

Nominal Surface. When nominal masonry units are combined, the nominal faces form nominal surfaces, separated from the actual masonry surface by one-half the standard joint thickness (designated "1/2j").

A Nominal Masonry Dimension is a dimension between two nominal faces or two nominal surfaces.

A Standard or Specified Dimension is equal to the nominal dimension less the thickness of the standard mortar joint (designated "j").

An Actual Dimension is the true dimension of the unit which may not vary from the standard dimension by more than the allowable tolerances, plus or minus.

Section 1. GRID POSITIONS FOR TILE WALLS

Fig. 1

When 4" facing tile units are applied as finish to masonry walls, the grid position of the nominal tile surface is the same as that of the masonry wall. When 2" soaps are used, the nominal tile surface and nominal masonry wall surface are in alternate grid positions.

The grid positions shown in A are those most commonly used. In some cases, however, it may be desirable to place the 4" multiple masonry walls with the nominal surfaces centered between grid lines, as shown in B.

A study of the interior layout will determine whether or not this is advisable. For example, where the design includes an odd number of 6" partitions between the outside wall and another wall or partition with the nominal finished surface on a grid line, the wall section shown at the top of detail B will permit all intermediate room dimensions to be laid out in 4" multiples.

Where the masonry walls on both sides are finished with soaps, as shown at the bottom of detail B, all layouts with nominal 4" and 8" finished partitions may have intermediate room dimensions in 4" multiples.

It should also be noted that the above interior conditions may normally exist for 6", 10" and 14" masonry walls, as they are positioned with one nominal surface on a grid line and the other centered between grid lines.

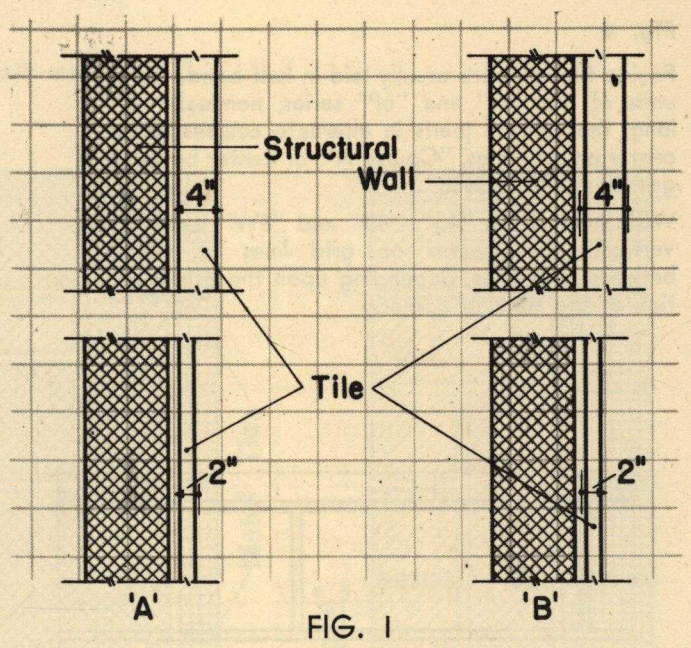


FIG. 1

Fig. 2

Walls and partitions, 4" and 8" thick, are positioned, whenever possible, so that their surfaces, enclosing a room or space, are all in the same grid position.

For example, when structural walls, positioned as indicated in Fig. 1-A, are finished with 4" facing units, the nominal surfaces of intersecting 4" or 8" walls or partitions are on grid lines as shown in C. If they are finished with soaps, as in D, then the nominal surfaces of intersecting 4" or 8" walls or partitions are generally centered between grid lines in order to maintain room dimensions in 4" multiples.

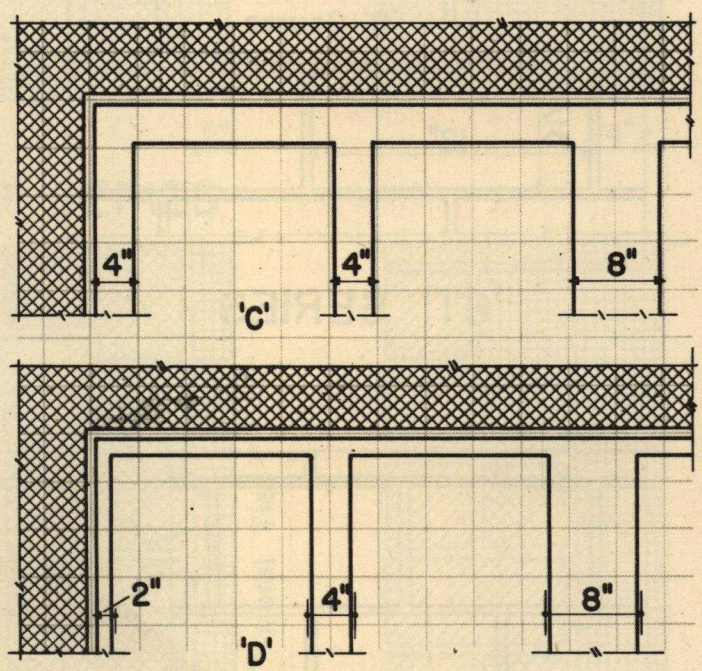


FIG. 2

Fig. 3

Walls and partitions 6" thick are positioned with one nominal surface on a grid line and the other between grid lines. An odd number of parallel 6" partitions usually involves at least one layout dimension that is an odd multiple of 2".

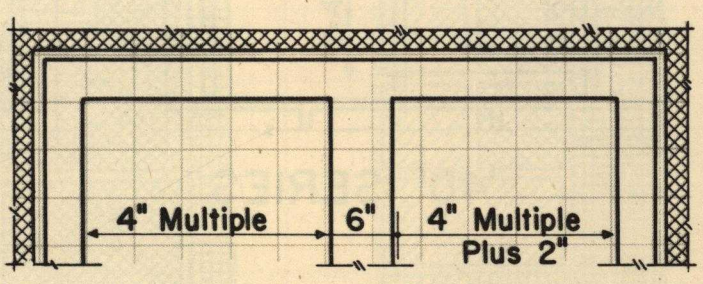


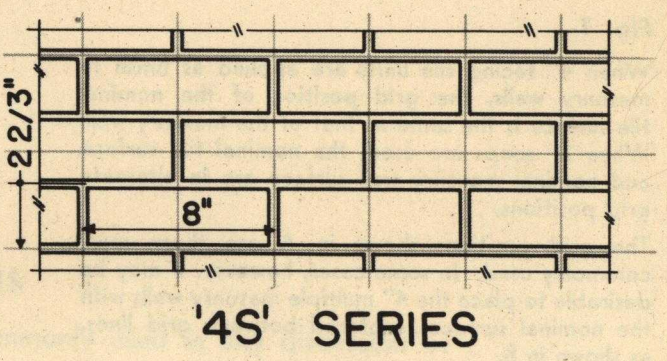
FIG. 3

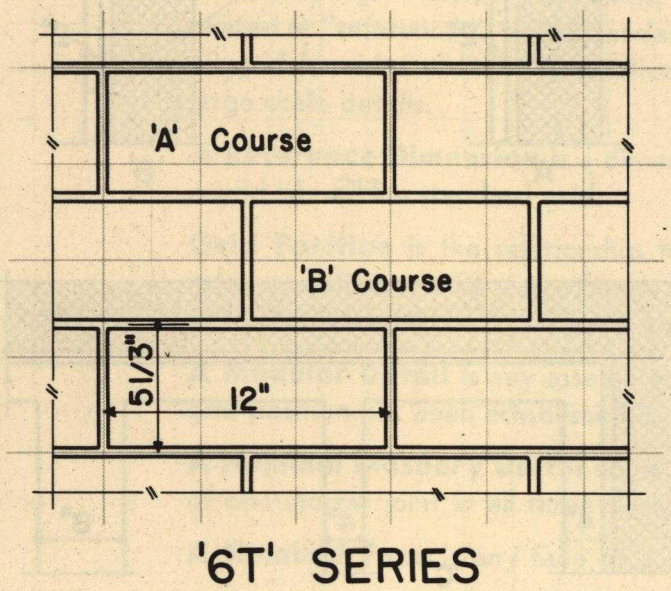
Section 1. GRID POSITIONS FOR TILE WALLS

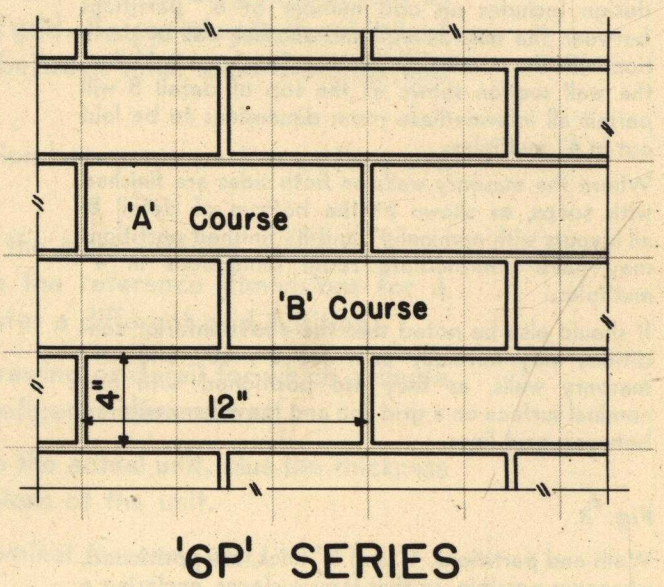
Fig. 4

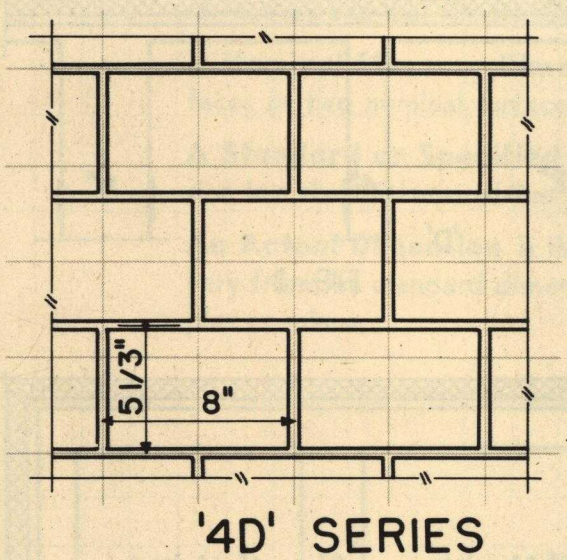
Facing tile units are usually laid in half bond. With units of the "6T" and "6P" series, nominally 12" long, the vertical joints in alternate courses either center on grid lines, "Course A", or center between grid lines, "Course B".

With units of the "4S", "4D" and "8W" series, all vertical joints center on grid lines or center between grid lines, depending upon the grid location of the starting corner.









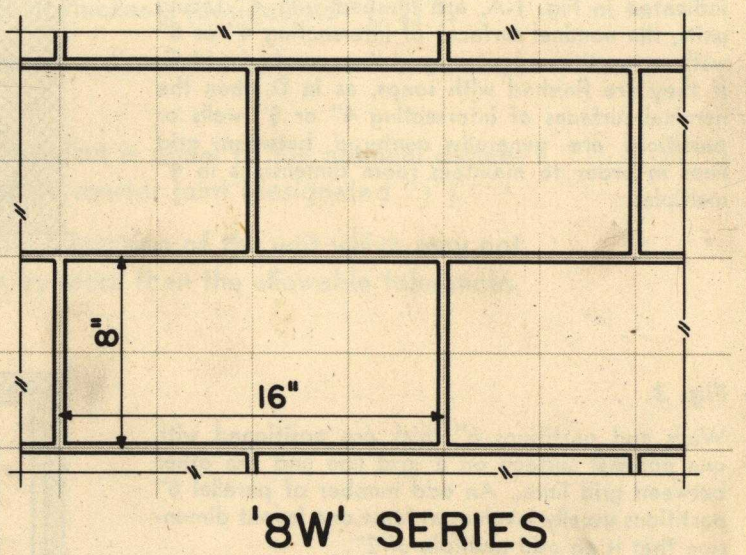


FIG. 4

Section 2. WALL AND PARTITION SECTIONS

Fig. 5

Only typical unit combinations are shown. Similar wall details may be used with the "8W" series.

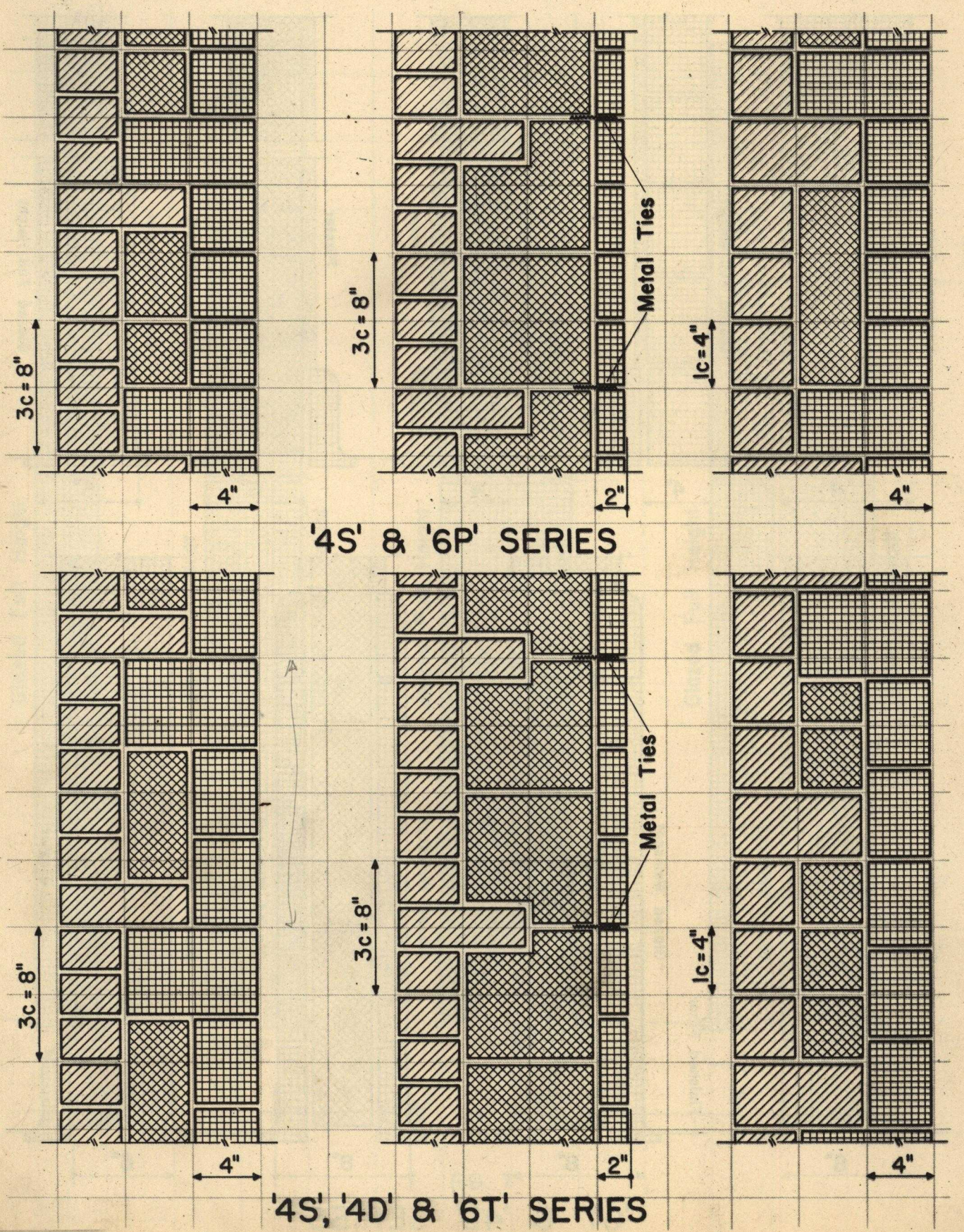


FIG. 5

Section 2. WALL AND PARTITION SECTIONS

Fig. 6

Walls of "6P" units are similar except that all horizontal joints center on grid lines.

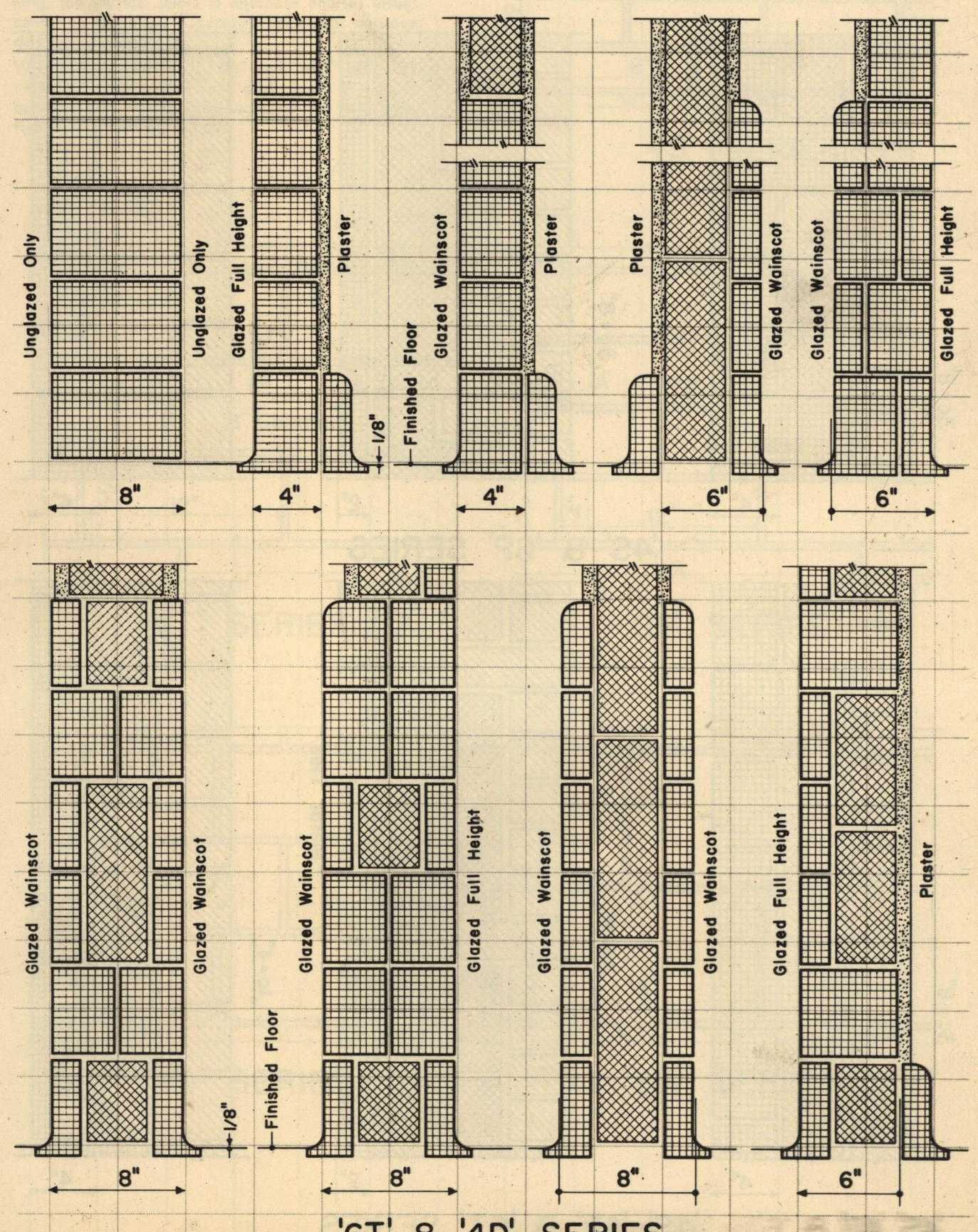


FIG. 6

Section 2. WALL AND PARTITION SECTIONS

Fig. 7

Typical wall, partition and wainscot sections finished on one or both sides are shown below in the "8W" series.

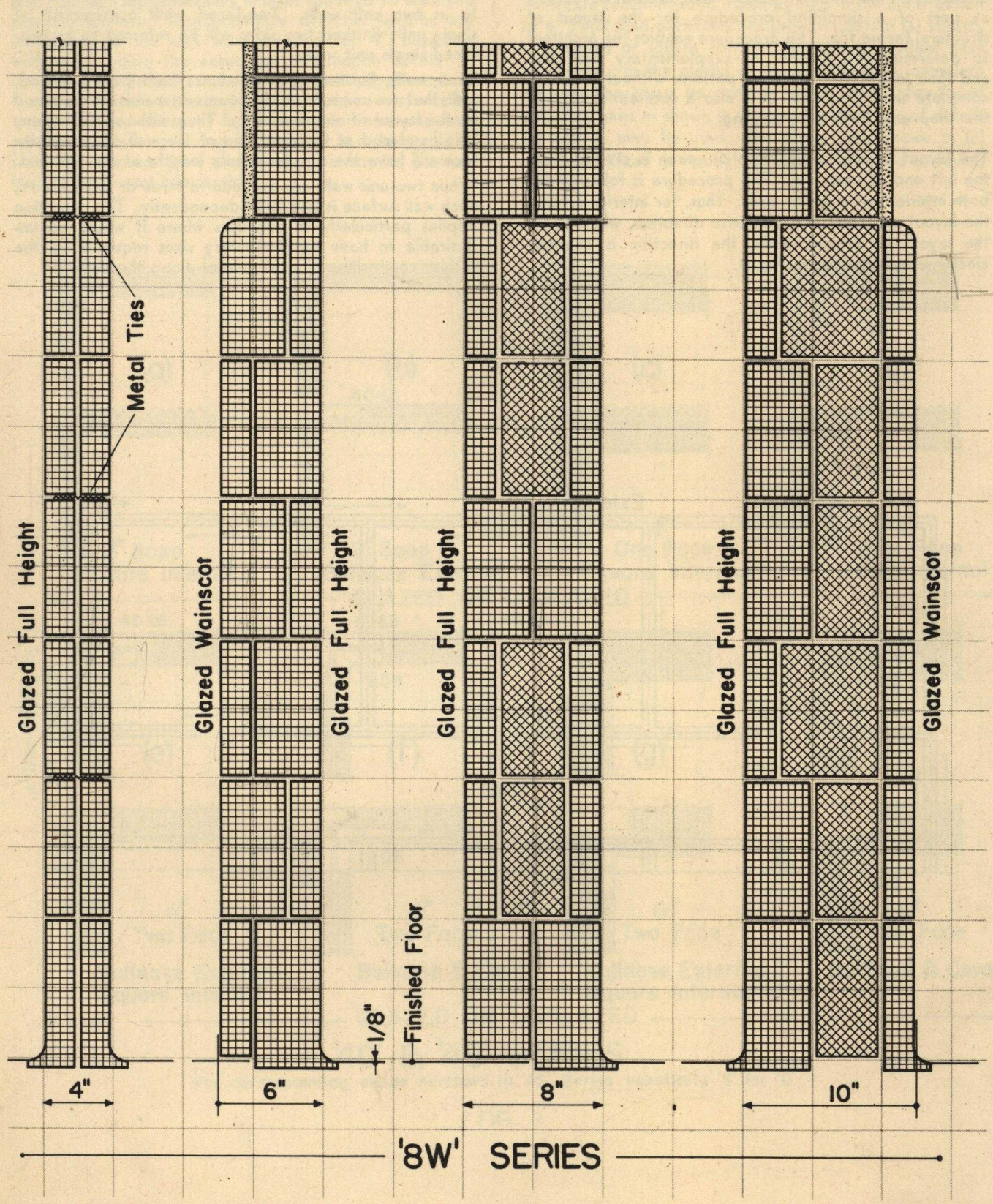


FIG. 7

Section 3. LAYOUT PROCEDURE

Fig. 8

Standard corner details, 4" flexibility in wall lengths and heights, opening details, pilaster and wing wall layout, discussed on the following pages, have all been developed as part of a simplified procedure for the layout of structural facing tile. This procedure enables the architect to determine the number of supplementary unit sizes and their locations in the joint pattern, without requiring complete shop drawings. It is also a substantial help to the shop and field in scheduling.

The layout of any single room or space is started from the left end of each wall. This procedure is followed for both interior and exterior walls. Thus, for interior spaces, the layout proceeds in a clockwise direction, whereas for the layout of exterior walls, the direction is counter-clockwise as indicated in Fig. 8.

In general, it is recommended that two-faced walls exceeding 4" in thickness be finished on each side with single-faced units. Walls of this type will be referred to as two unit walls. Two-faced walls constructed of single units finished two sides will be referred to as two-faced single unit walls.

Since walls, finished both sides, are built from one end, walls that are common to two rooms or spaces are governed by the layout of one room only. Thus, with supplementary lengths placed at the right end of the wall, the opposite face will have the supplementary lengths at the left end.

When two-unit walls are common to three or more rooms, each wall surface is laid out independently. This condition applies particularly to corridors where it would be undesirable to have supplementary sizes required by the various room dimensions repeated along the corridor.

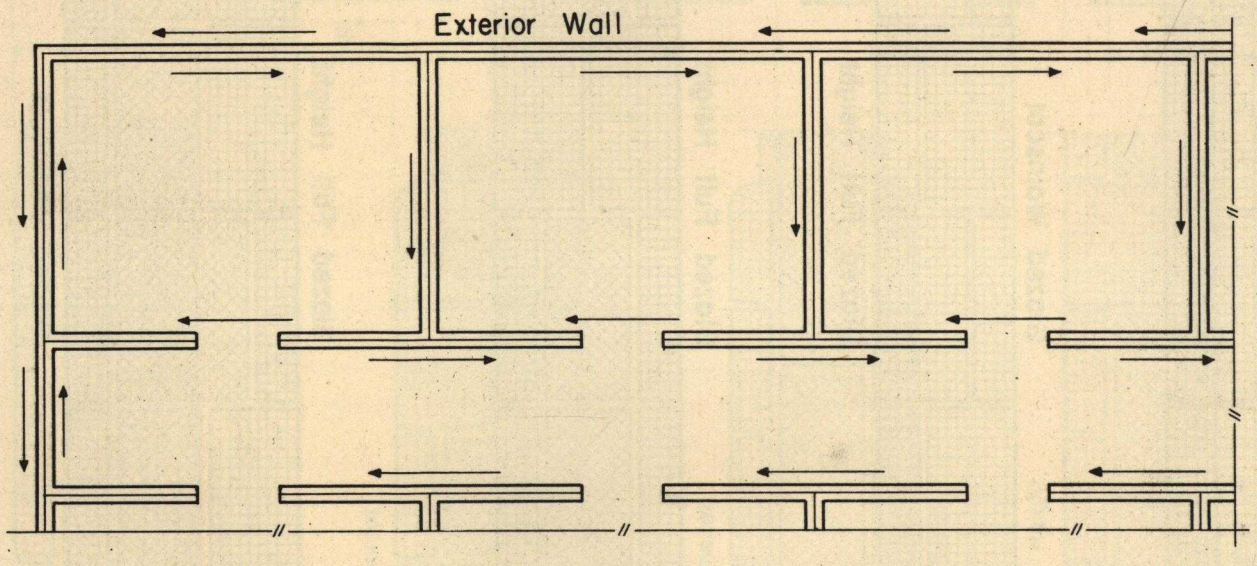


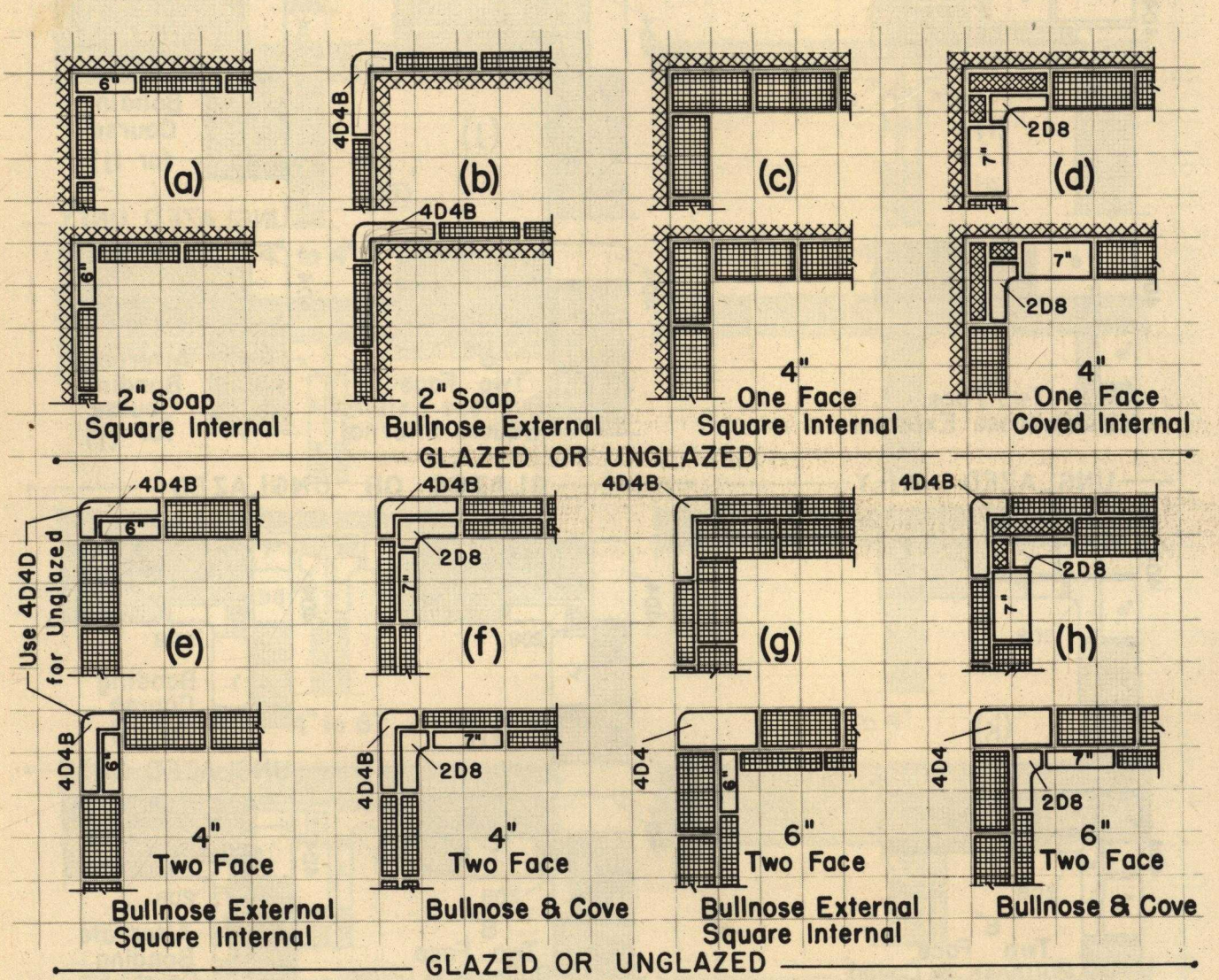
FIG. 8

Section 4. STANDARD CORNERS

Fig. 9

The horizontal layout of facing tile is based on standard corner details. Corner details include the corner units and adjacent supplementary lengths required to start the bonding pattern. Supplementary stretcher lengths are introduced in the wall when needed for 4" flexibility without changing the corner or intersection detail. In two-faced single unit walls the adjacent supplementary stretcher, considered as part of a standard corner, may be required in a variety of lengths or additional one-face supplementary lengths may be required in order to maintain the necessary joint alignment. This applies particularly to three-way intersections.

Typical interior and exterior corner details are shown for the "4D" and "4S" series in 2", 4" and 6" thicknesses. Alternate recommended methods used in the construction of 4" two-faced partitions are shown in details (e) and (f), with coved or square corners substituted in either case as desired. In the glazed or unglazed finishes, complete 4" partitions may be constructed of single two-faced stretcher units as shown in (e), or a combination of details (e) and (f) may be used. The single units shown in (e) are then utilized as through bonders every third or fourth course.



'4D' & '4S' SERIES

For corresponding shape numbers in '4S' Series substitute 'S' for 'D'

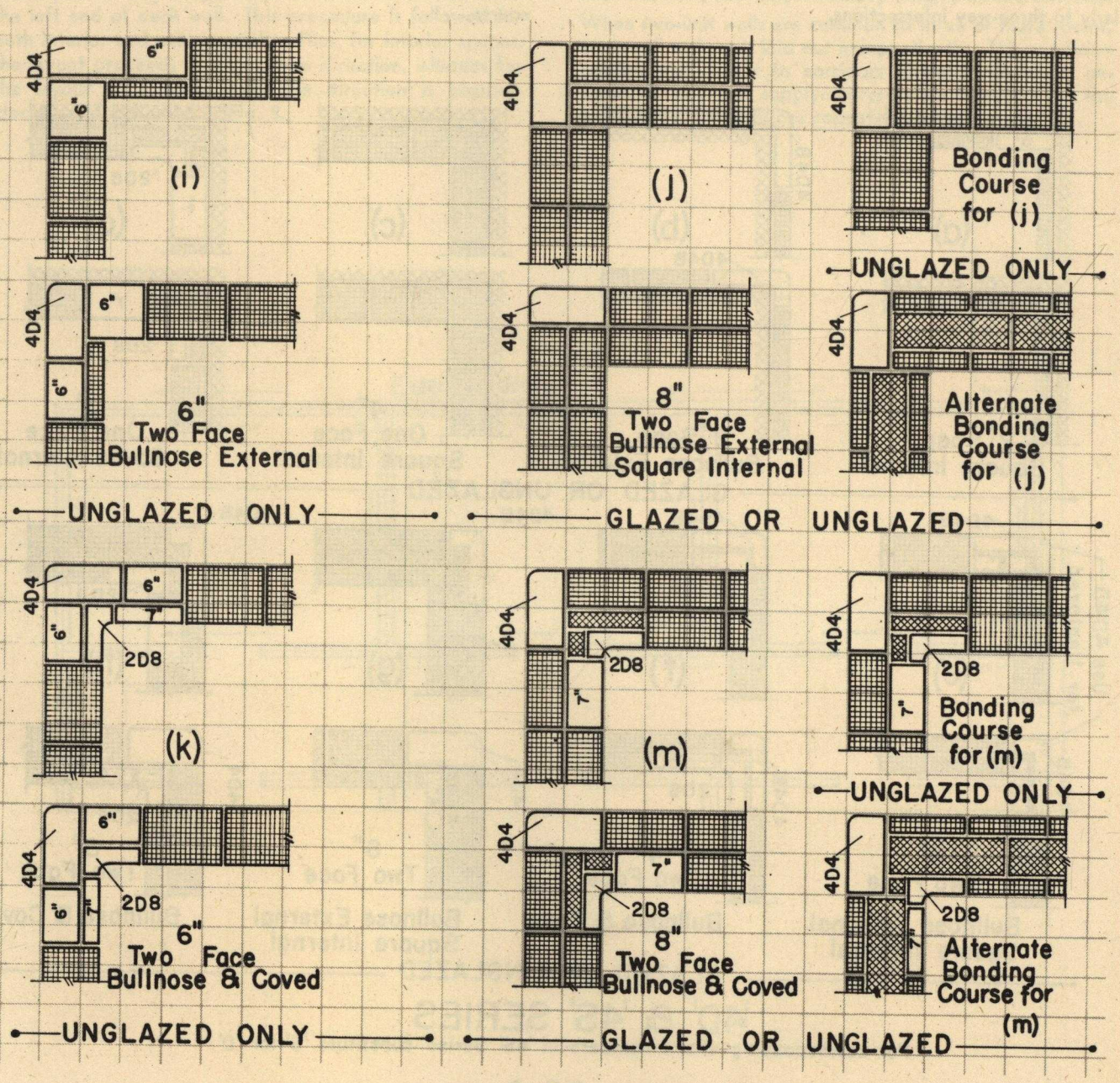
FIG. 9

Section 4. STANDARD CORNERS

Fig. 10

Additional corner details for the "4D" and "4S" series in the 6" and 8" thicknesses are shown below. Details (i) and (k), and the upper right bonding courses for details (j) and (m) are designed particularly for unglazed facing tile as indicated by the full thickness stretcher and bonding units.

For 8" walls, glazed both sides, and two select-face unglazed walls, the through bonding units are replaced with two single face units, 2" in thickness, with a 4" structural core unit between, as shown in the alternate bonding courses for details (j) and (m).



'4D' & '4S' SERIES

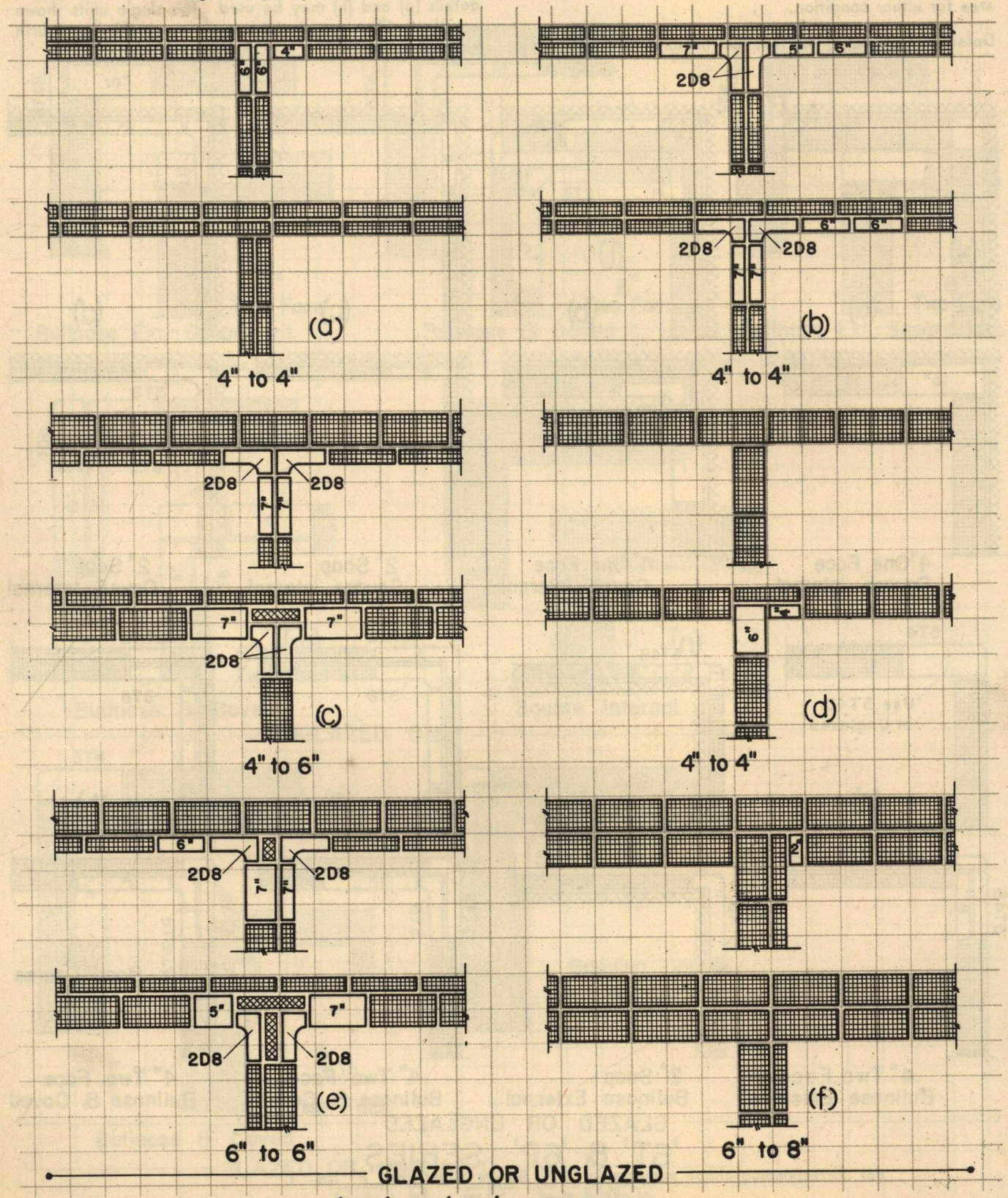
For corresponding shape numbers in '4S' Series substitute 'S' for 'D'

FIG. 10

Section 4. STANDARD CORNERS

Fig. 11

Alternate course, "Tee" intersection details for two unit and two-face single unit walls in various combinations are shown below for square and coved internal corner conditions. Space limitations permit showing only one grid position for each detail; however, other combinations due to changes in grid position are readily determined.



'4D' & '4S' SERIES

For corresponding shape numbers in '4S' Series substitute 'S' for 'D'

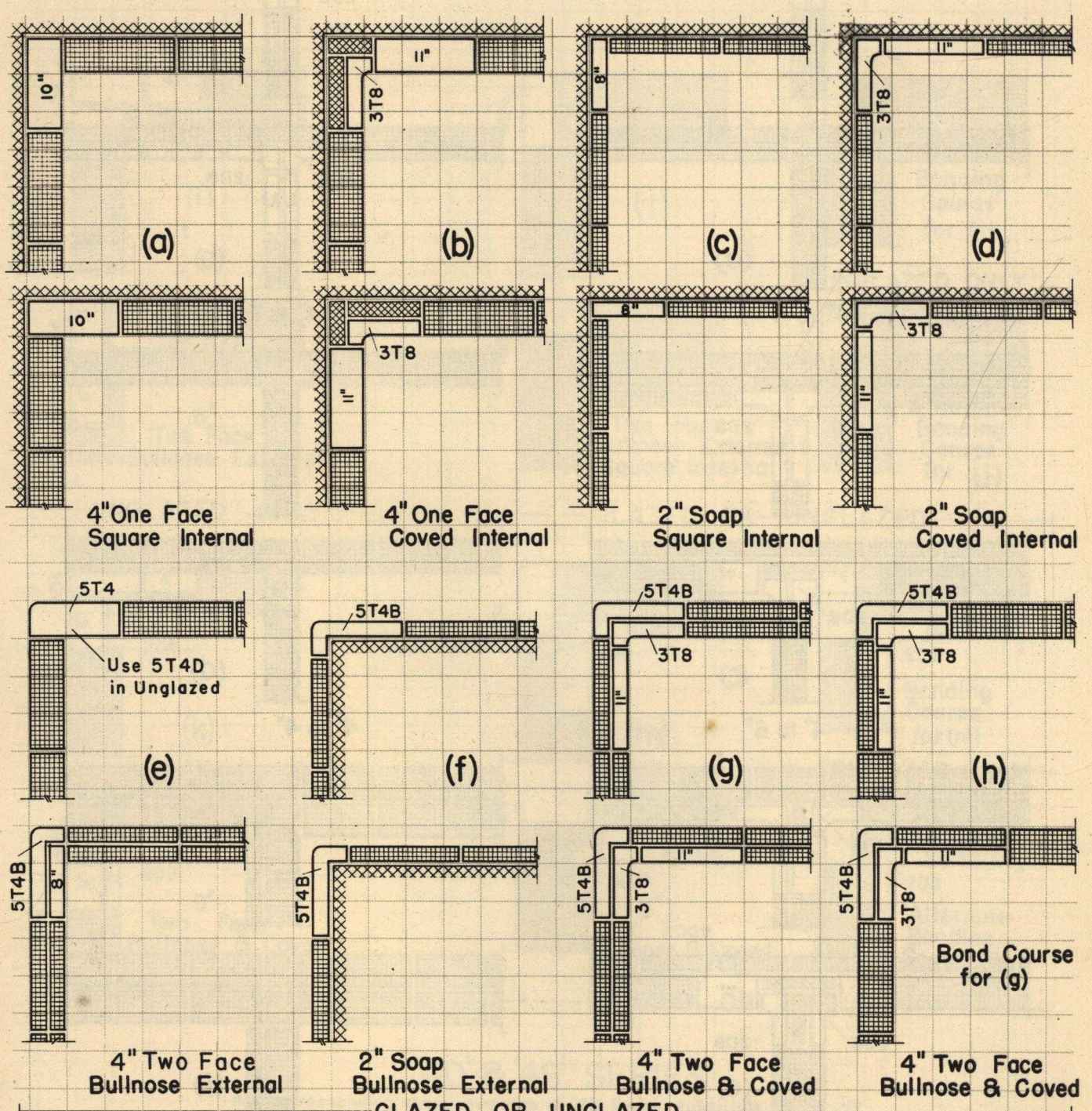
FIG. 11

Section 4. STANDARD CORNERS

Fig. 12

Typical standard corner details for the "6T" and "6P" series in 2" and 4" unit thicknesses are shown below. Both square and internal coved corner conditions are shown for single-face walls and partitions in details (a) to (d). Note that the joint position is identical in the shaded area for either condition.

Details (e), (g) and (h) illustrate the recommended methods used in the construction of 4" two-faced partitions. In the glazed or unglazed finishes, complete 4" partitions may be constructed of single two-faced stretcher units as shown in the upper detail (e) and in detail (h), or a combination of the two courses shown in detail (e) or details (g) and (h) may be used. The single units shown are then utilized as stretcher units every third or fourth vertical course.



GLAZED OR UNGLAZED

'6T' & '6P' SERIES

For corresponding shape numbers in '6P' Series substitute 'P' for 'T'

FIG. 12

Section 4. STANDARD CORNERS

Fig. 13 and 14

Standard corner details for 6" and 8" walls and partitions in the "6T" and "6P" series are shown below and at the top of Fig. 14. While details (k), (m), (p), and (r) apply particularly to unglazed tile with one selected and one unselected smooth face, they may also be used as alternate details for two-unit wall construction where two select surfaces are desired.

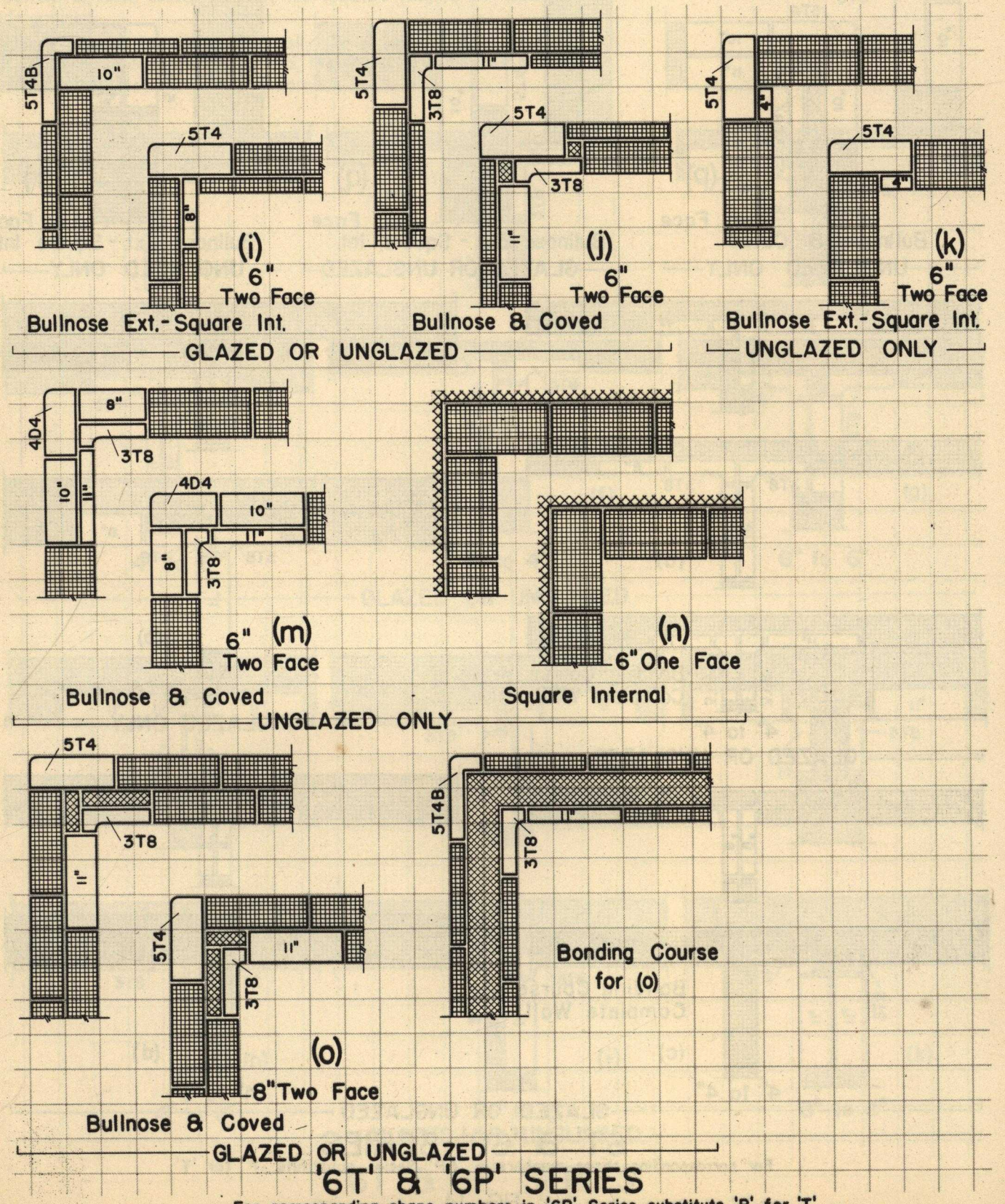


FIG. 13

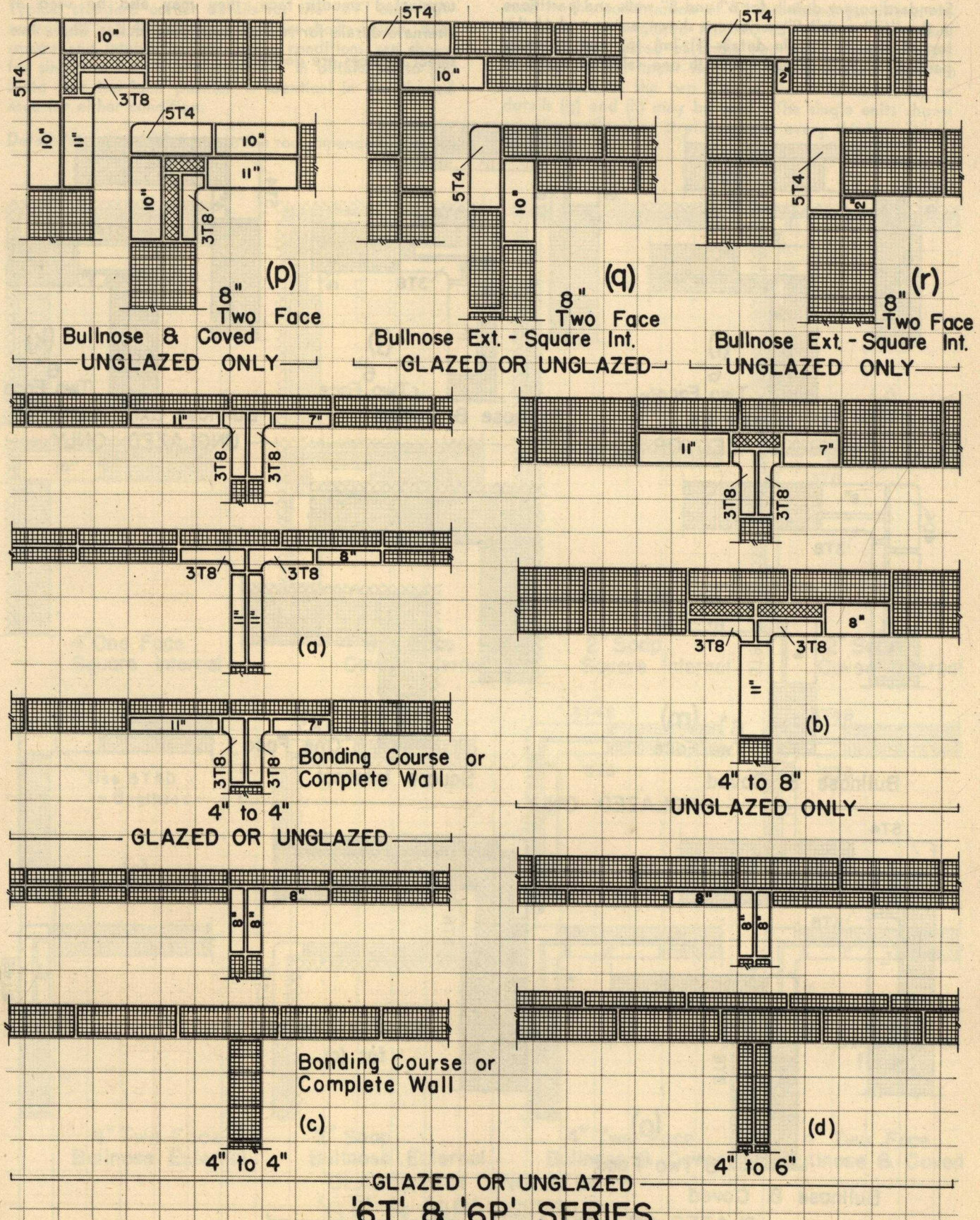

5T4
10"
3T8
11"
(p)
8" Two Face
Bullnose & Coved
UNGLAZED ONLY
(q)
8" Two Face
Bullnose Ext. - Square Int.
GLAZED OR UNGLAZED
2"
(r)
8" Two Face
Bullnose Ext. - Square Int.
UNGLAZED ONLY
7"
8"
(a)
4" to 4"
GLAZED OR UNGLAZED
Bonding Course or Complete Wall
(b)
4" to 8"
UNGLAZED ONLY
(c)
4" to 4"
GLAZED OR UNGLAZED
(d)
4" to 6"
'6T' & '6P' SERIES
For corresponding shape numbers in '6P' Series substitute 'P' for 'T'

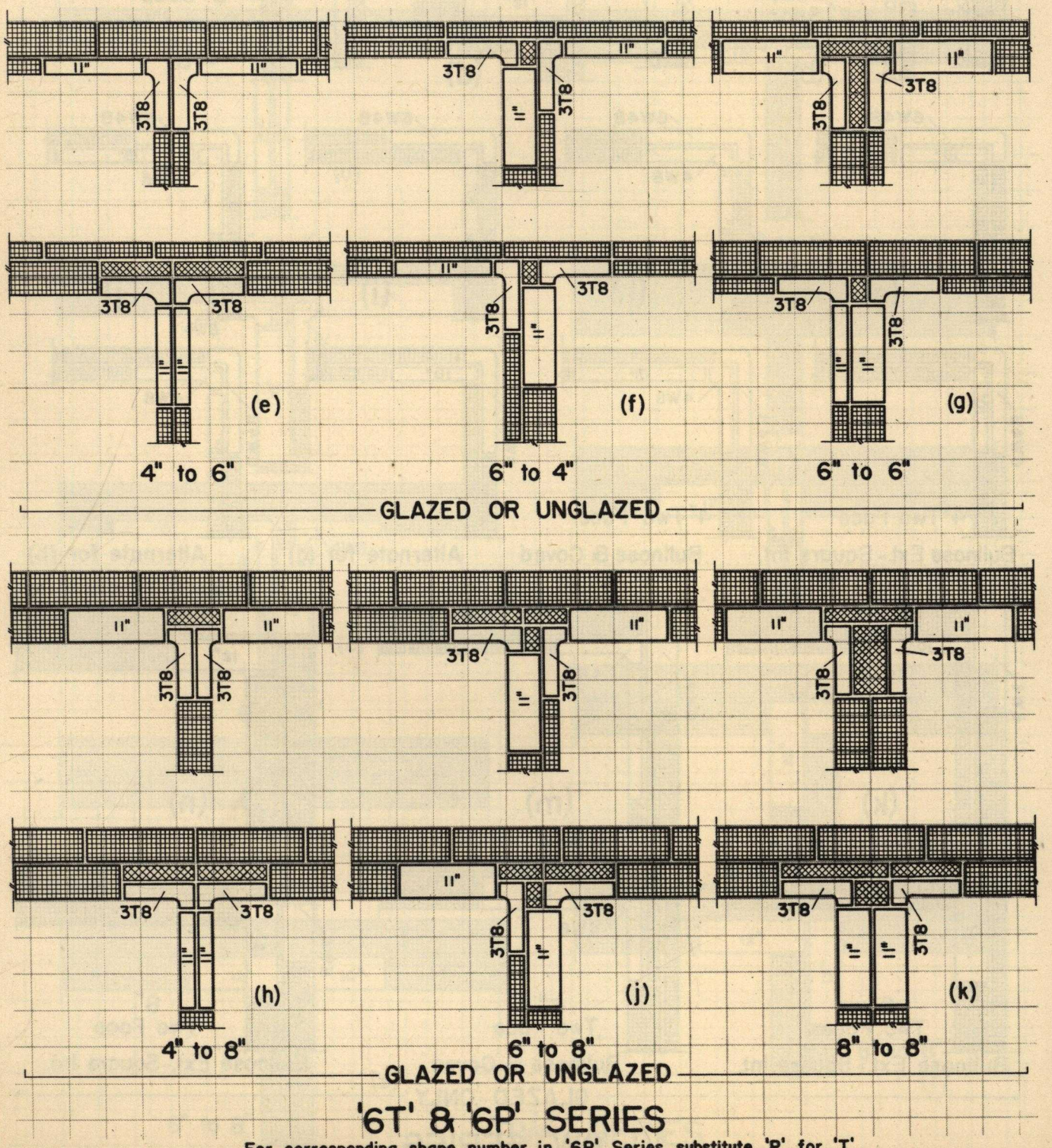
FIG. 14

Section 4. STANDARD CORNERS

Figs. 14 and 15

Typical "Tee" intersection details for various combinations of two-face walls and partitions are shown in Figs. 14 and 15. It should be noted that in all cases the continuous joint pattern of full-length stretchers is maintained in the through wall. Changes in the grid position will affect the size of supplementary stretchers and the joint pattern in some cases; however, the required lengths are readily determined.

Coved internal corners are generally shown because they require additional supplementary sizes and the layout is somewhat more difficult than for square internal corners.



'6T' & '6P' SERIES

For corresponding shape number in '6P' Series substitute 'P' for 'T'

FIG. 15

Section 4. STANDARD CORNERS

Fig. 16

Typical standard corner details in the "8W" series for one and two-face walls and partitions in 2", 4", 6" and 8" thicknesses are shown below.

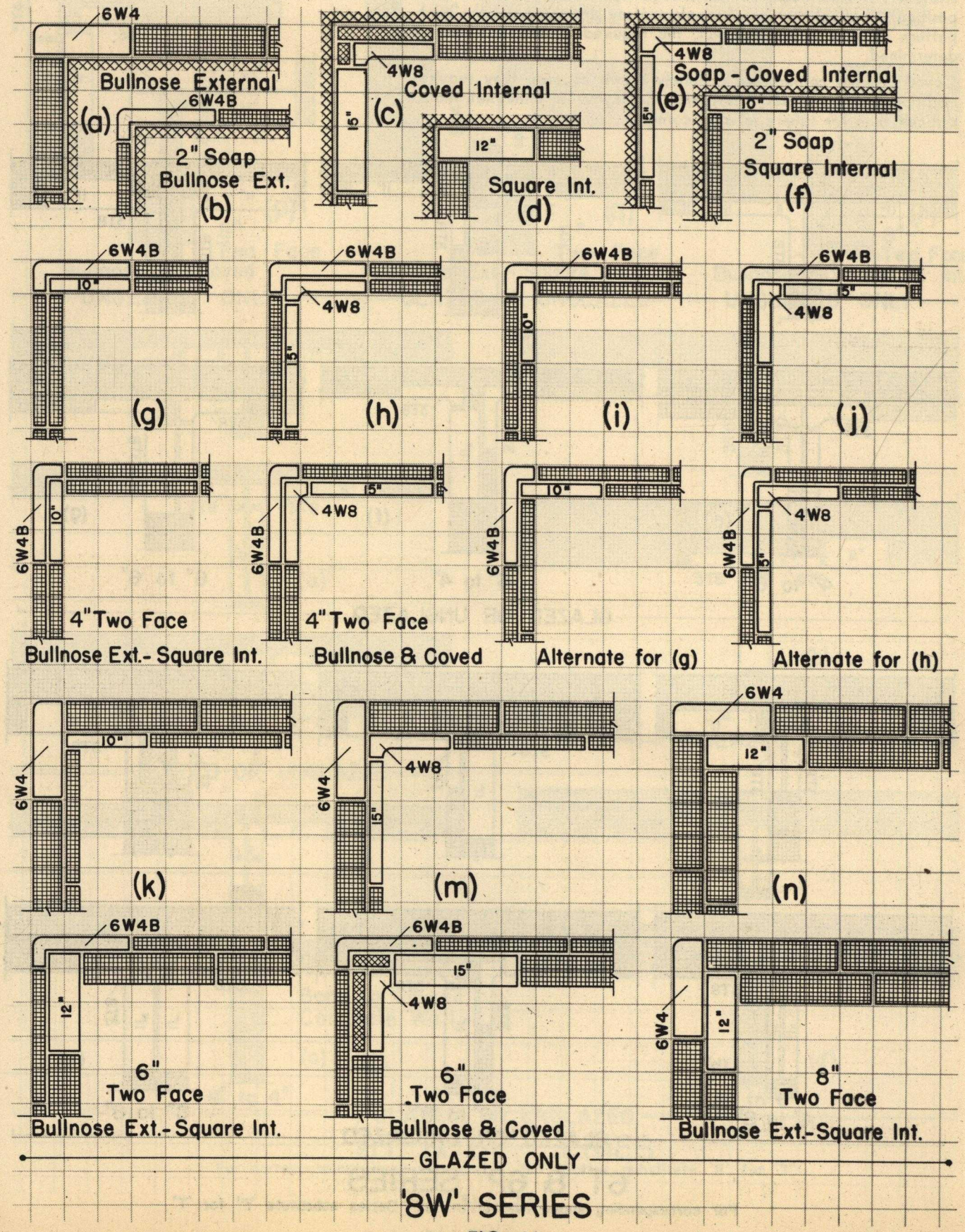
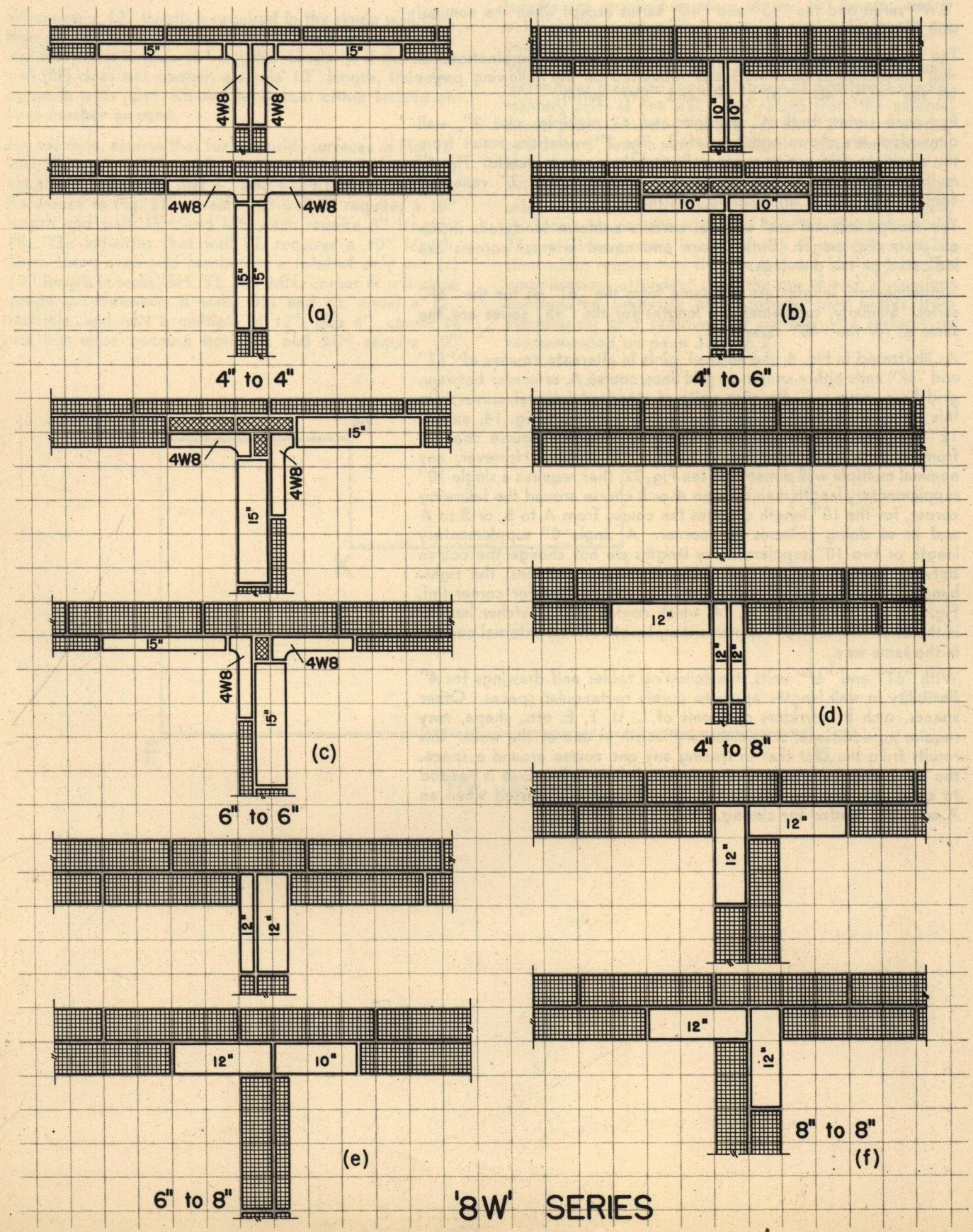


FIG. 16

Section 4. STANDARD CORNERS

Fig. 17

Typical "Tee" intersections for the "8W" series in various combinations of two-face wall thicknesses are shown below.



'8W' SERIES

FIG. 17

Section 5. 4" FLEXIBILITY IN WALL LENGTHS

With standard corner details, 4" flexibility in wall lengths requires the use of supplementary stretcher lengths in the "6T", "6P" and "8W" series and the "4S" and "4D" series except when the nominal wall dimensions equal some 4" multiple.

The use of supplementary units in half bond for all combinations of wall dimensions is illustrated and tabulated on the following pages for the "4S", "4D", "6T", "6P" and "8W" series.

For each series, both 4" multiple and 4" multiple, plus 2", wall dimensions are shown and tabulated. The 2" variations result from the alternate grid positions for walls and their corner details. The 4" multiple, plus 2", dimension occurs particularly with 2" veneered construction and 6" intersecting partitions.

The shaded internal and external corners conform to details shown on preceding pages. Both square and coved internal corners are indicated on the drawings.

Supplementary lengths are the same from the "6T" as for the "6P" series. Similarly, supplementary lengths for the "4S" series are the same as for the "4D" series.

As illustrated in Fig. 4, the vertical joints in alternate courses of "6T" and "6P" units either center on grid lines, course A, or center between grid lines, course B. Because units of standard internal corners for this series, except corner (k), Fig. 13 and corner (r), Fig. 14, extend 12" into one wall and 6" into the other, any one course changes from A to B, or B to A upon turning the corner. However, any nominal multiple wall dimension, see Fig. 22, that requires a single 10" supplementary length maintains an A or B course around the following corner, for the 10" length changes the course from A to B, or B to A and in so doing reverses the corner. A single 8" supplementary length or two 10" supplementary lengths do not change the course between corners and, consequently, for such conditions, the right-hand corners are not reversed, (see Fig. 22). Except for corner (m), Fig. 13, and corner (p), Fig. 14, which contain 10" stretcher lengths in the assembly, the 10" supplementary length affects external corners in the same way.

With "6T" and "6P" units, the following tables and drawings for 4" flexibility in wall lengths apply to purely rectangular spaces. Other spaces, such as corridors or rooms of L, U, T, E, etc., shape, may require an additional supplementary length in one of the walls. This results from the fact that in tracing any one course around a space, the last corner may start an A course, whereas a B course is needed to close with the starting corner, or a B course is started when an A course is needed for closing.

Section 5. 4" FLEXIBILITY IN WALL LENGTHS

Fig. 18

Such conditions may be ascertained for spaces in dimensions of 4" multiples by examination of the dimensions, see Fig. 18, of the critical parallel walls.

Whenever a 10" length is required in the single wall (EF), then an odd number of opposite parallel walls (GH, KL and MN) must include 10" lengths. Similarly, if the single wall (EF) does not contain a single 10" length, then the opposite walls (GH, KL and MN) must either include an even number or none.

For example, assume that for the inside surfaces of Fig. 18, wall EF equals a 12" multiple, plus 4", walls GH and MN equal a 12" multiple, plus 8", and wall KL a 12" multiple. Reference to Fig. 22a reveals that wall EF requires a 10" length and walls GH and MN each require 8" lengths. Fig. 22c indicates that wall KL requires a 10" length. Since there is an odd number or a total of only one (1) 10" length in walls GH, KL and MN, corner N will close properly. However, if walls GH and KL equal a 12" multiple, and MN a multiple of 12", plus 4", corner N will not close because both KL and MN require 10" lengths. When corner N does not close and MN equals a 12" multiple, an 8" and a 10" supplementary length are required; if MN equals a 12" multiple, plus 4", two 8" lengths are required in place of the 10" length; and if a 12" multiple, plus 8", then a 10" and a 4" length are needed in place of the 8" length.

With "8W" units (Fig. 23), spaces that are not purely rectangular may also require the use of additional supplementary units in one wall. This results from the external corner which extends 4" in one wall and 12" into the other so that an 8" length may be required to close the coursing. In such cases, two 12" lengths must be used.

When additional lengths are required, the designer can select the wall in which they are to be used. This generally enables such conditions to be handled inconspicuously. The variables present in spaces with 4" multiple, plus 2", dimensions require that they be laid out for the job. The complications attendant upon the use of such dimensions confirm the simplicity and economy that results from symmetrical grid positions for nominal wall surfaces as recommended on page 37, Fig. 2.

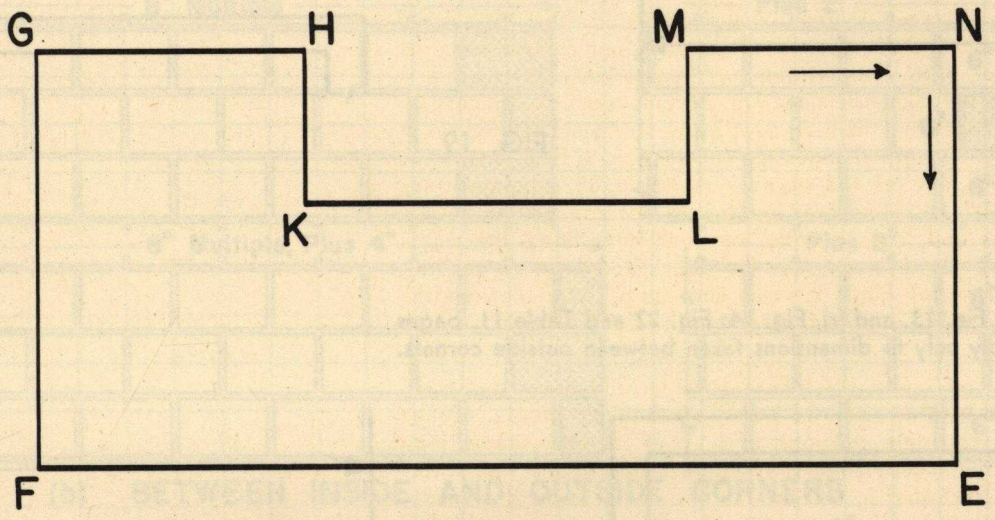


FIG. 18

Section 5. 4" FLEXIBILITY IN WALL LENGTHS

Fig. 19

Corners (k) and (m), Fig. 13, and (p) and (r), Fig. 14 for unglazed two-face single unit walls comprise a different assembly of either external or internal corner units from those used in Fig. 22. For this reason, layout dimensions for walls using these corners can be applied to Fig. 22 and Table 11, pages 56 and 57, in one way only, as follows:

For corners (m), Fig. 13, and (p), Fig. 14: Fig. 22 and Table 11, pages 56 and 57, apply only to dimensions taken between inside corners.

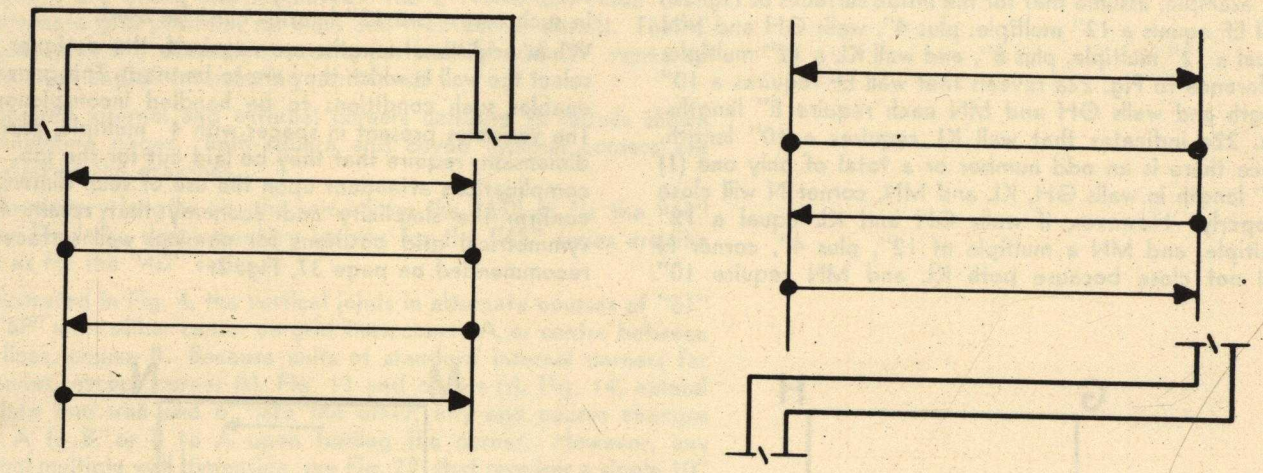


FIG. 19

Fig. 20

For corners (k), Fig. 13, and (r), Fig. 14: Fig. 22 and Table 11, pages 56 and 57, apply only to dimensions taken between outside corners.

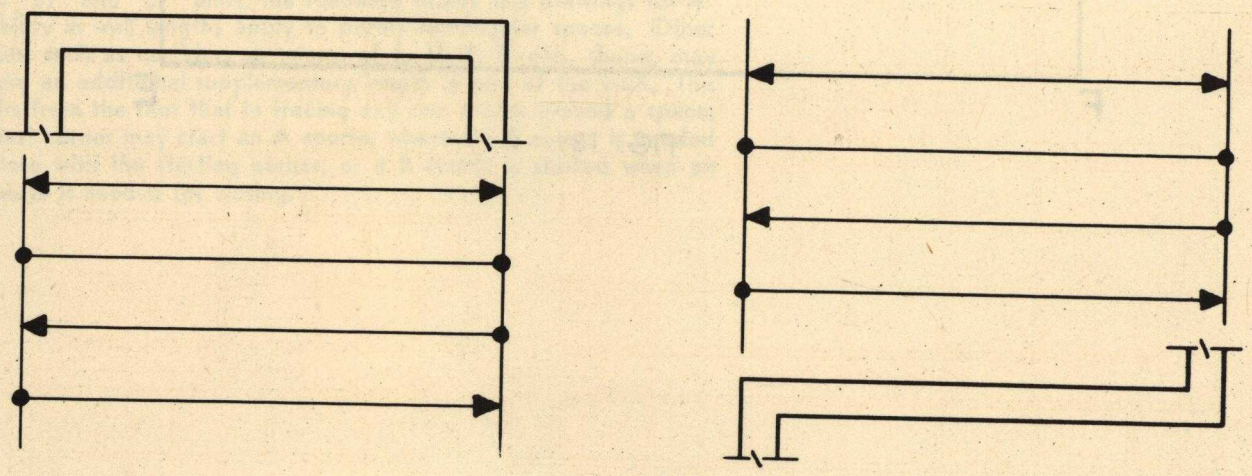
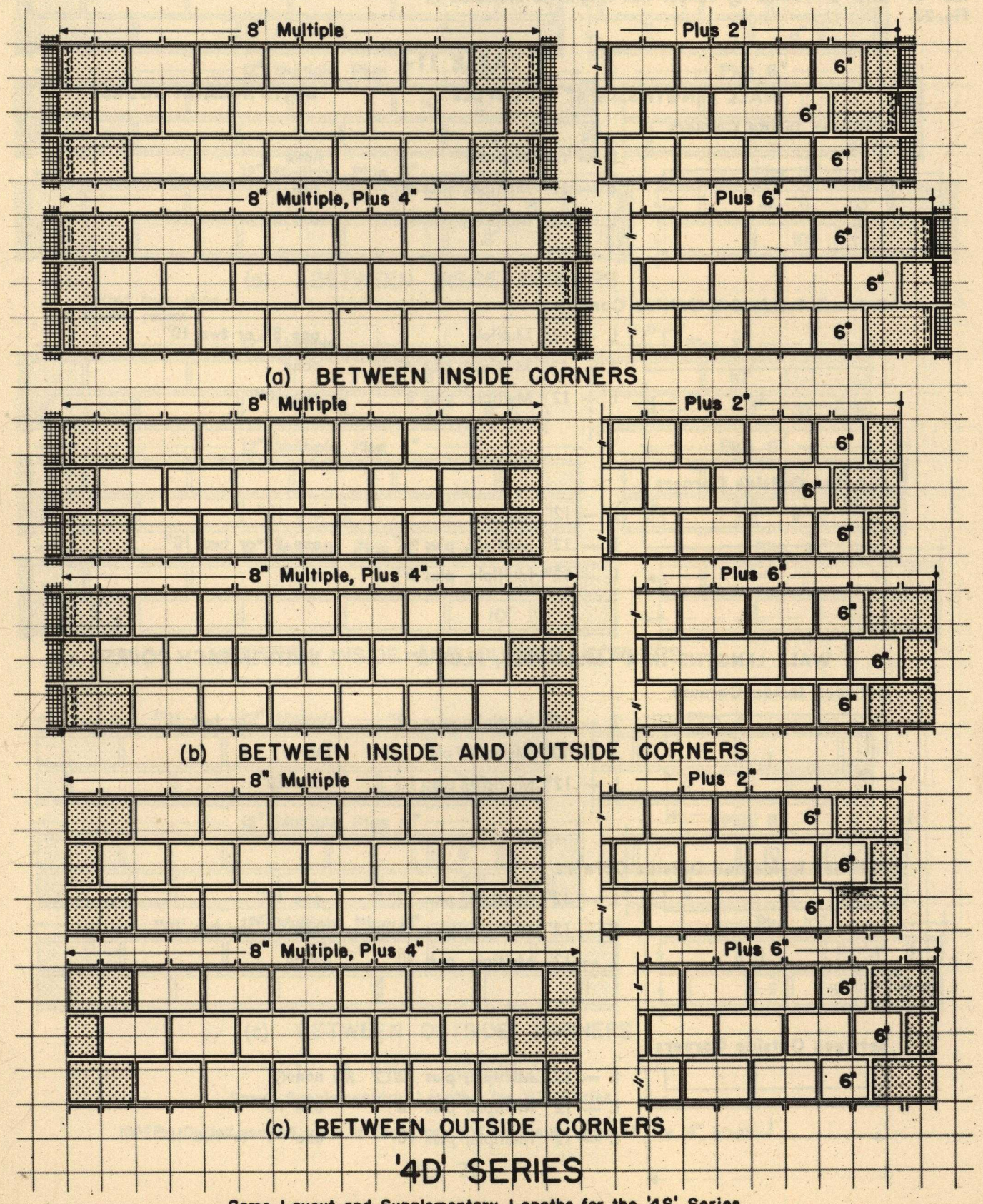


FIG. 20

Section 5. 4" FLEXIBILITY IN WALL LENGTHS

Fig. 21

"4D" AND "4S" SERIES. As shown below any 4" multiple wall length can be laid out with 8" length standard stretcher and corner units. Wall lengths equal to a 4" multiple, plus 2", require a 6" length stretcher in each course.



Same Layout and Supplementary Lengths for the '4S' Series

NOTE: Dotted lines at internal corners indicate 1" cove return.

FIG. 21

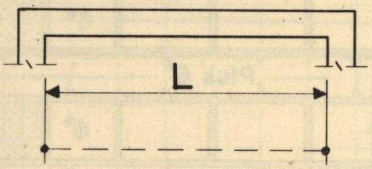
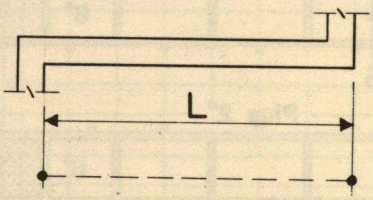
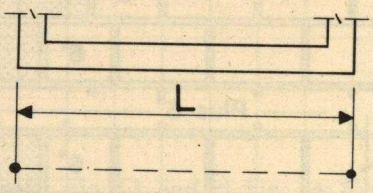
Section 5. 4" FLEXIBILITY IN WALL LENGTHS

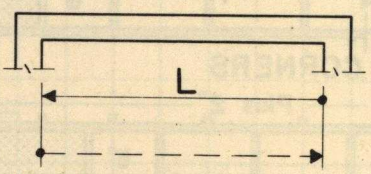
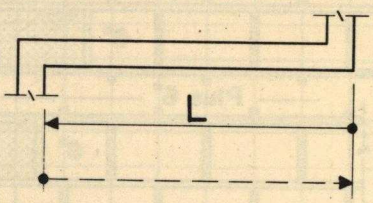
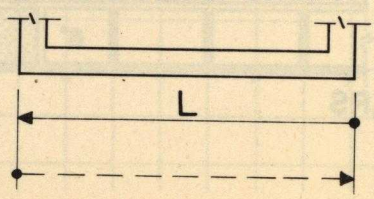
Fig. 22

"6T" AND "6P" SERIES

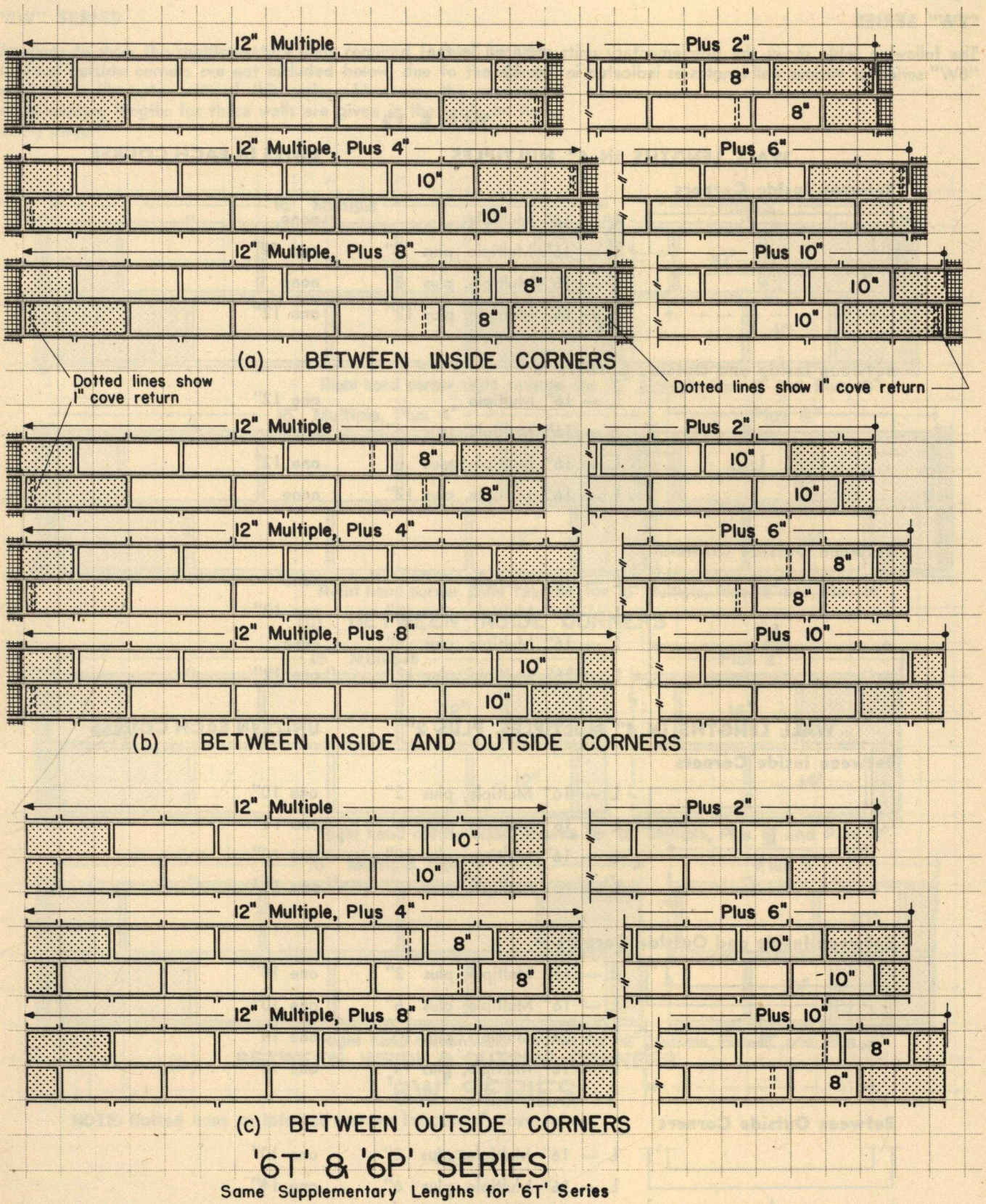
The following table lists the supplementary stretcher units required in the "6T" and "6P" series for various wall lengths as indicated in Fig. 22.

TABLE 11

WALL LENGTHS IN 4" MULTIPLES	UNITS IN EACH COURSE
Between Inside Corners	
	
L = 12" Multiple	none
L = 12" Multiple, plus 4"	one 10"
L = 12" Multiple, plus 8"	one 8" or two 10"
Between Inside and Outside Corners	
	
L = 12" Multiple	one 8" or two 10"
L = 12" Multiple, plus 4"	none
L = 12" Multiple, plus 8"	one 10"
Between Outside Corners	
	
L = 12" Multiple	one 10"
L = 12" Multiple, plus 4"	one 8" or two 10"
L = 12" Multiple, plus 8"	none

WALL LENGTHS IN 4" MULTIPLES, PLUS 2"	UNITS IN EACH COURSE
Between Inside Corners	
	
L = 12" Multiple, plus 2"	one 8" or two 10"
L = 12" Multiple, plus 6"	none
L = 12" Multiple, plus 10"	one 10"
Between Inside and Outside Corners	
	
L = 12" Multiple, plus 2"	one 10"
L = 12" Multiple, plus 6"	one 8" or two 10"
L = 12" Multiple, plus 10"	none
Between Outside Corners	
	
L = 12" Multiple, plus 2"	none
L = 12" Multiple, plus 6"	one 10"
L = 12" Multiple, plus 10"	one 8" or two 10"

Section 5. 4" FLEXIBILITY IN WALL LENGTHS



'6T' & '6P' SERIES

Same Supplementary Lengths for '6T' Series

NOTE: Dotted vertical joints indicate two 10" lengths in place of one 8" length.

FIG. 22

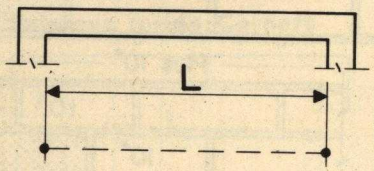
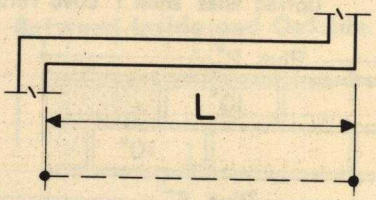
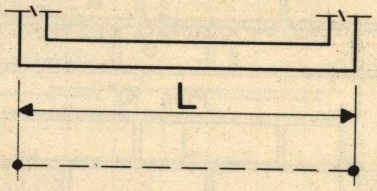
Section 5. 4" FLEXIBILITY IN WALL LENGTHS

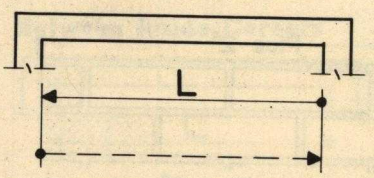
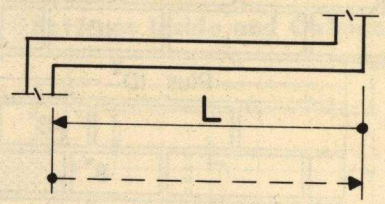
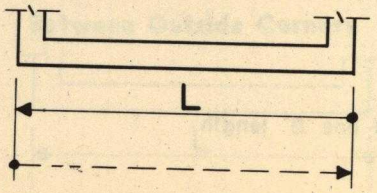
Fig. 23

"8W" SERIES

The following table shows the supplementary units required in the "8W" series for various wall lengths as indicated in Fig. 23.

TABLE 12

WALL LENGTHS IN 4" MULTIPLES	UNITS IN EACH COURSE
Between Inside Corners	
	
L = 16" Multiple	none
L = 16" Multiple, plus 4"	one 12"
L = 16" Multiple, plus 8"	none
L = 16" Multiple, plus 12"	one 12"
Between Inside and Outside Corners	
	
L = 16" Multiple	one 12"
L = 16" Multiple, plus 4"	none
L = 16" Multiple, plus 8"	one 12"
L = 16" Multiple, plus 12"	none
Between Outside Corners	
	
L = 16" Multiple	none
L = 16" Multiple, plus 4"	one 12"
L = 16" Multiple, plus 8"	none
L = 16" Multiple, plus 12"	one 12"

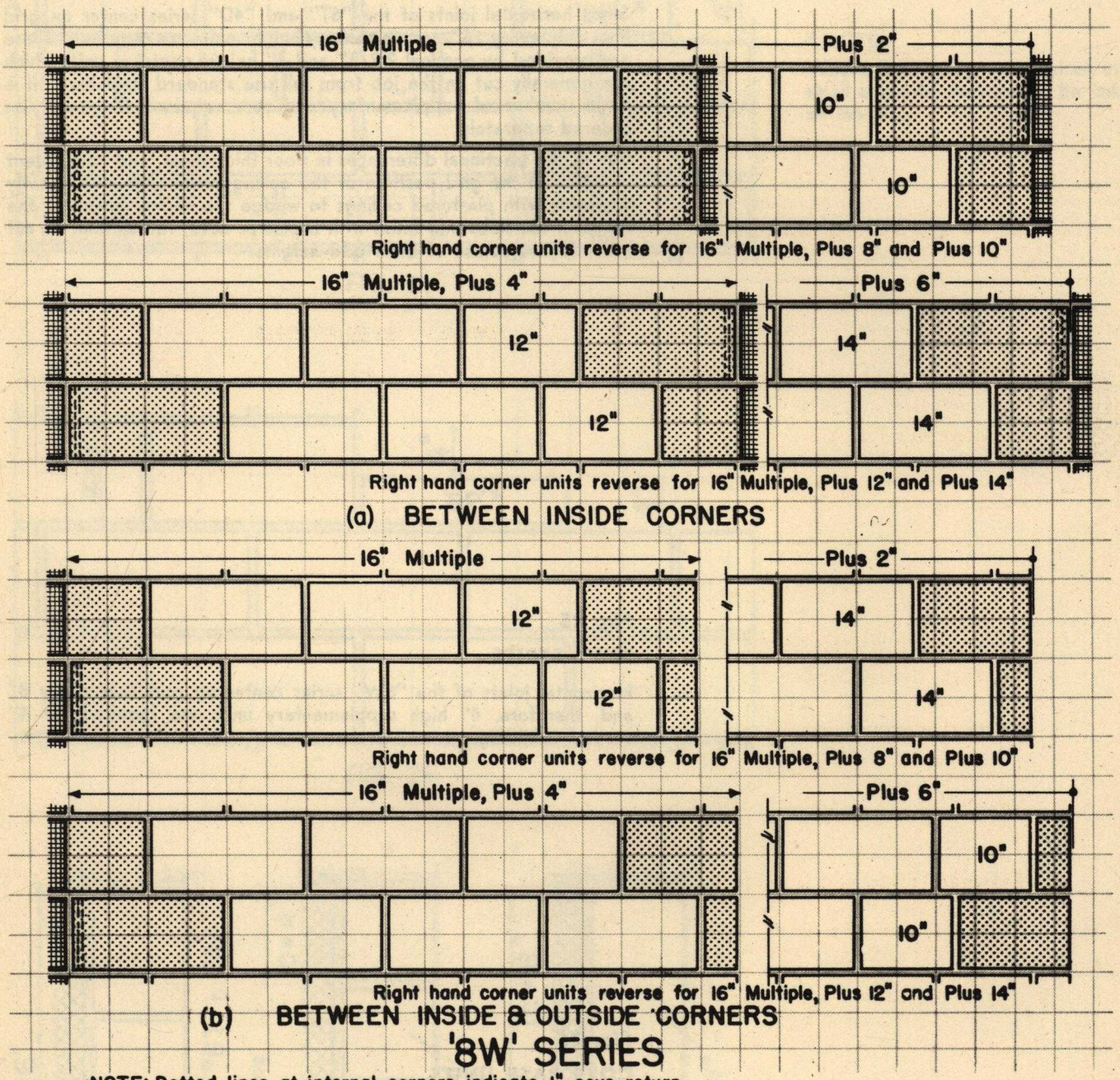
WALL LENGTHS IN 4" MULTIPLES, PLUS 2"	UNITS IN EACH COURSE
Between Inside Corners	
	
L = 16" Multiple, plus 2"	one 10"
L = 16" Multiple, plus 6"	one 14"
L = 16" Multiple, plus 10"	one 10"
L = 16" Multiple, plus 14"	one 14"
Between Inside and Outside Corners	
	
L = 16" Multiple, plus 2"	one 14"
L = 16" Multiple, plus 6"	one 10"
L = 16" Multiple, plus 10"	one 14"
L = 16" Multiple, plus 14"	one 10"
Between Outside Corners	
	
L = 16" Multiple, plus 2"	one 10"
L = 16" Multiple, plus 6"	one 14"
L = 16" Multiple, plus 10"	one 10"
L = 16" Multiple, plus 14"	one 14"

Section 5. 4" FLEXIBILITY IN WALL LENGTHS

Fig. 23

"8W" SERIES

Drawings to show the supplementary units required for wall lengths between outside corners are not included below, due to the space required to illustrate units of this series. However, the required supplementary lengths for these walls are given in the table on the facing page.



NOTE: Dotted lines at internal corners indicate 1" cove return.

FIG. 23

Section 6. 4" FLEXIBILITY IN WALL HEIGHTS

"6P" SERIES

Since the "6P" series is nominally 4" high, it provides 4" flexibility for vertical layout, without supplementary heights.

Fig. 24

"6T" AND "4D" SERIES

Since horizontal joints of the "6T" and "4D" series center on grid lines only every 16", supplementary height units are required. These are provided by nominal 2 2/3" and 4" height stretcher units which are generally cut on the job from full size standard stretchers. If a large number of supplementary sizes are required they may be ordered separately.

Due to the fractional differences in floor thicknesses, and consequent variation in the grid position of the ceiling surface, it is frequently advisable with plastered ceilings to wedge the narrow space at the top with tile slabs and finish with a plaster cove, rather than to cut a continuous course of short odd heights.

Fig. 25

"8W" SERIES

Horizontal joints of the "8W" series center on grid lines every 8" and, therefore, 4" high supplementary units are required for 4" vertical flexibility.

Fig. 26

COVE BASE UNITS

The 4", 5 1/3" and 8" cove base unit heights are shown with their corresponding "6P", "6T" or "4D", and "8W" stretcher units. It should be noted that the finished floor surface is consistently located 1/8" below the grid line. To provide for this grid position, the cove base face-height projection is 1/4" greater than the standard stretcher height. This also permits the use of straight stretcher base courses, if desired, with 1/4" joints at the floor line, as indicated in Fig. 7.

Section 6. 4" FLEXIBILITY IN WALL HEIGHTS

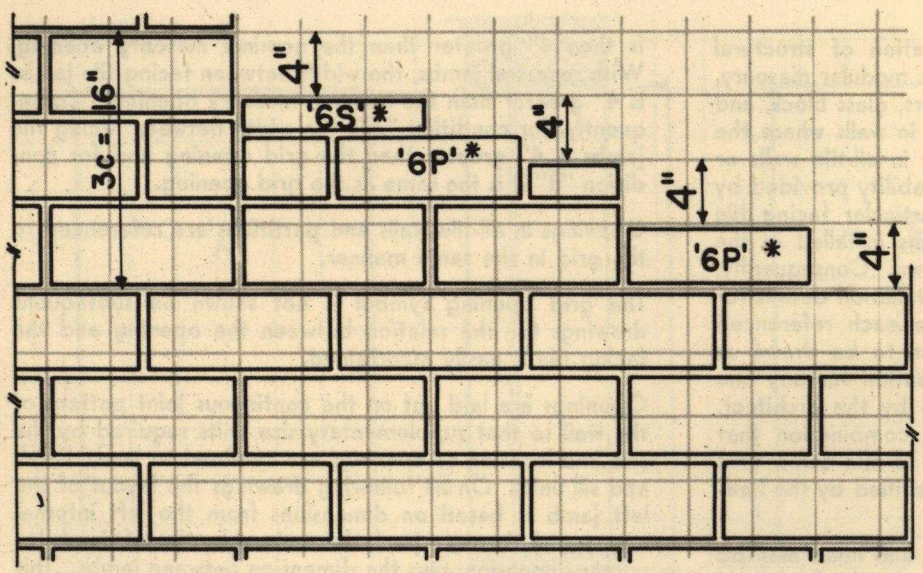


FIG. 24

* NOTE:
Where these units are required in small amounts, they should be cut on the job.

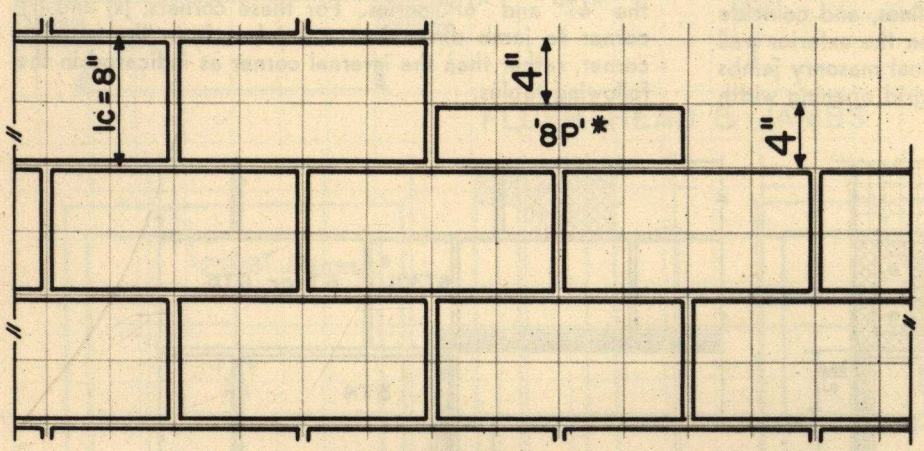


FIG. 25

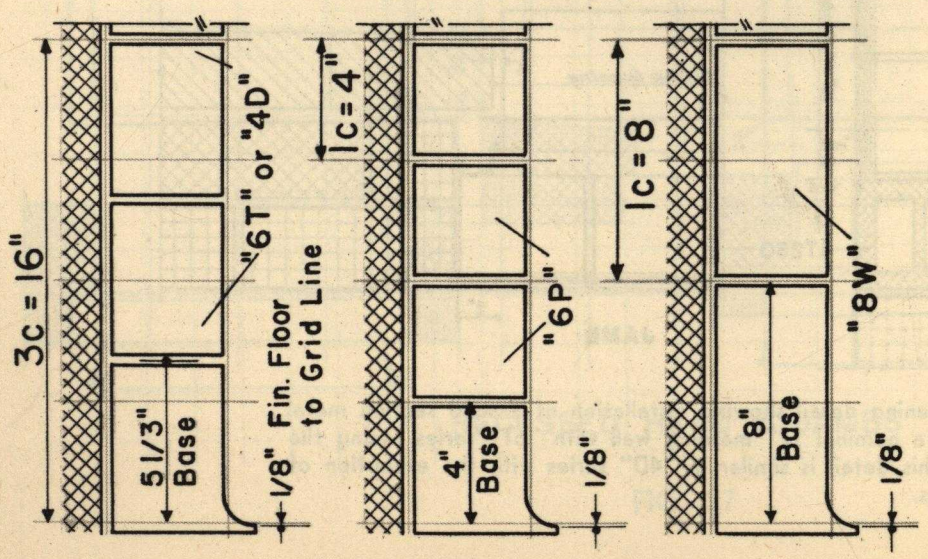


FIG. 26

Section 7. OPENING DETAILS

Fig. 27

Opening details involve the coordination of structural facing tile with other products, such as modular masonry, both facing and backup, windows, doors, glass block, and trim. Facing tile openings may occur in walls where the tile is applied as finish to masonry or in all-tile walls or partitions. Because of the interchangeability provided by coordination, the combinations of particular facing tile jamb, head, and sill details, with items installed in the openings, are too numerous to be drawn. Consequently, facing tile details at openings, and installation details for windows, doors, glass block, etc., are each referenced to the standard grid, permitting them to be drawn as separate modular details. The combination for any one job may then be selected and shown by the architect. Since it is essential for their correct combination that these separate details be referenced to the same grid lines, the grid opening is used, and identified by the half-bracket symbol.

The conformation of openings at jamb and head may be flush, or include a recess or chase. The depth of recesses and chases at jambs is 2", and, at the head, 1 1/3" or 2 2/3". The conformation at sills is determined by the window or door installation detail and the sill used.

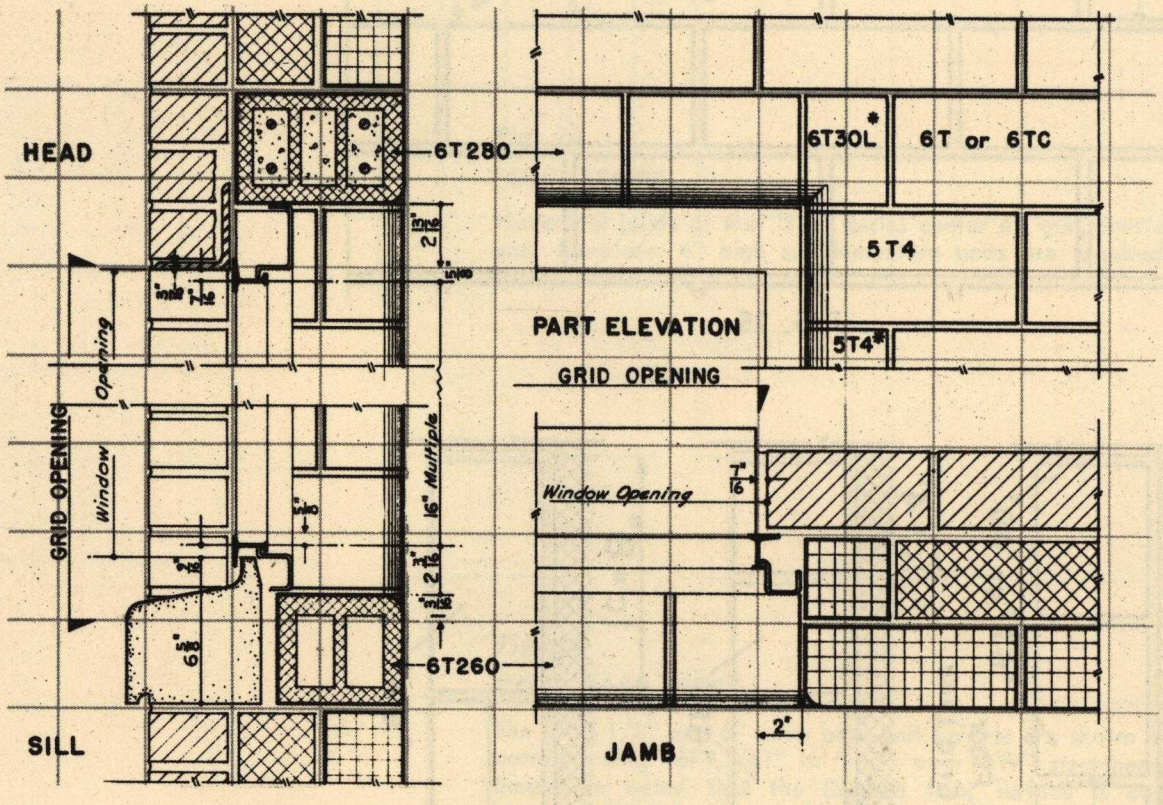
With flush jambs, when the exterior wall surface is on a grid line, jambs are normally on grid lines, and coincide with the grid opening as in "A". When the exterior wall surface is between grid lines, the nominal masonry jambs are between grid lines as in "B". The grid opening width is then 4" greater than the nominal masonry opening. With recessed jambs, the width between facing tile jambs is 4" greater than the nominal masonry opening. Consequently, for condition "A", the width between facing tile jambs is 4" greater than the grid opening and for condition "B" it is the same as the grid opening.

Openings in all-tile walls and partitions are referenced to the grid in the same manner.

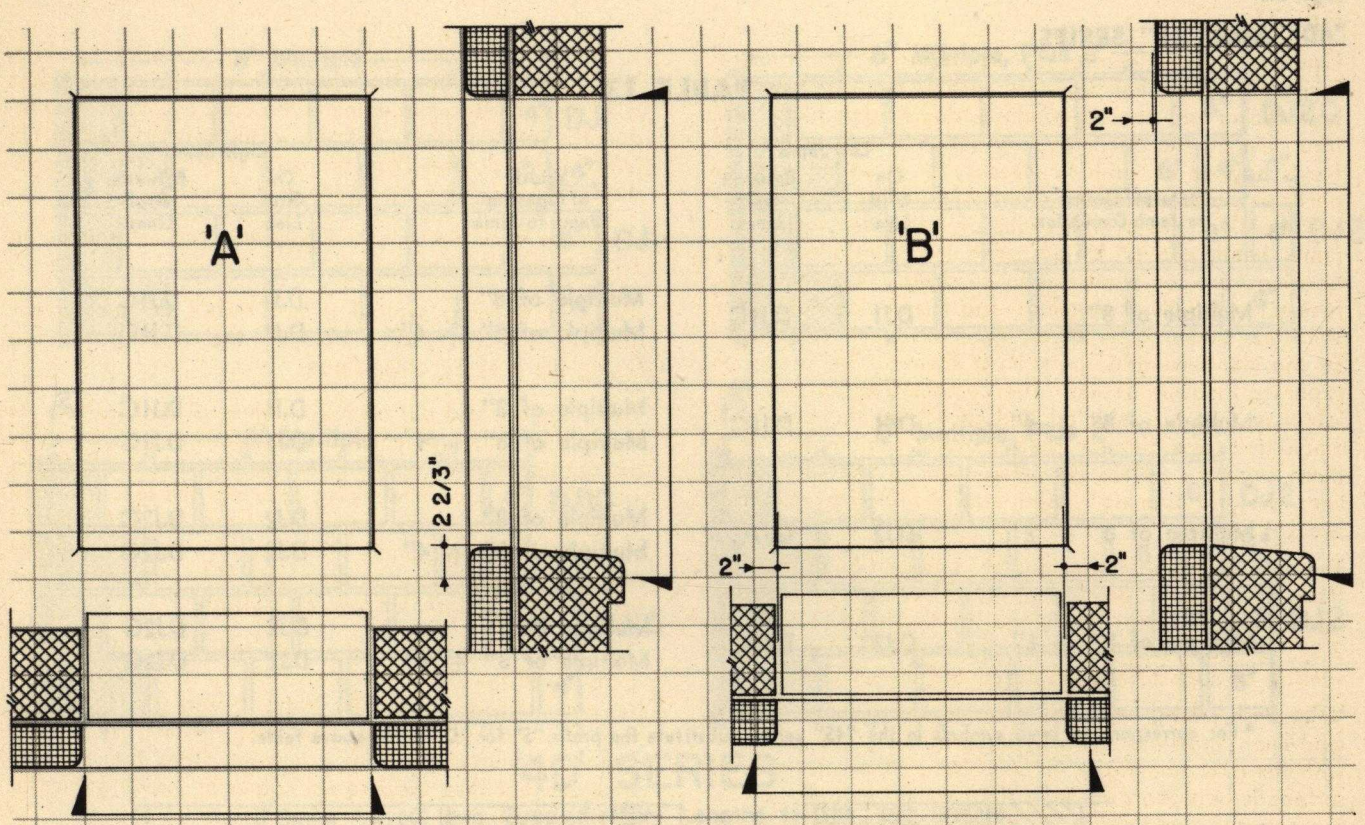
The grid opening symbol is not shown on subsequent drawings for the relation between the opening and the facing tile is easily ascertained.

Openings are laid out on the continuous joint pattern of the wall so that supplementary size units required by the size and location of openings are confined to jamb, lintel, and sill units. On all following drawings the layout of the left jamb is based on dimensions from the left internal corner with the right jamb determined by the left jamb-to-corner dimension, plus the dimension between jambs. This fits both jambs into the overall pattern.

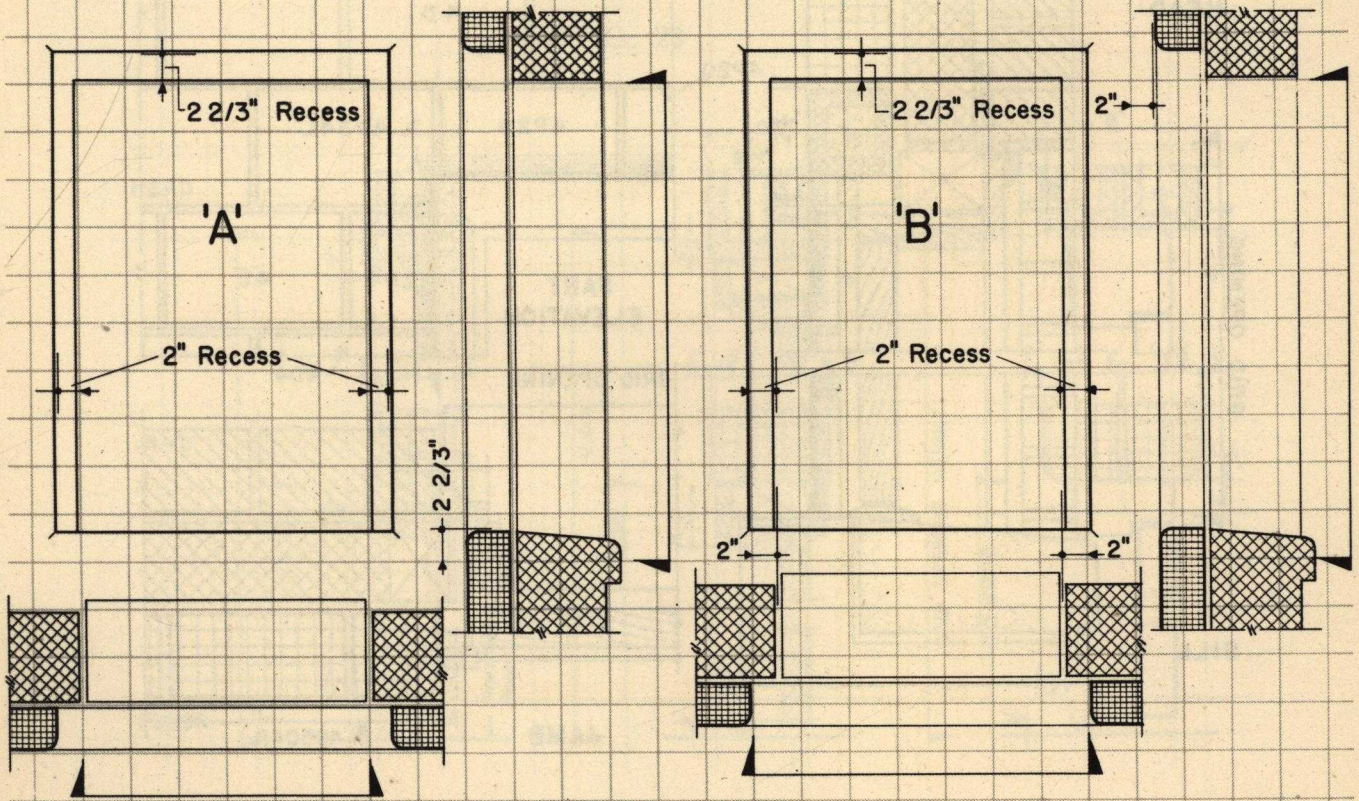
Figs. 28, 29, and 30, together with tables 13, 14, and 15, apply to all the standard corners shown in Section 4 with the exception of corners (k), Fig. 13; and (r), Fig. 14, in the "6T" and "6P" series. For these corners, (k) and (r), corner to jamb dimensions are taken from the external corner, rather than the internal corner as indicated in the following tables.



Typical opening detail showing installation of a solid section metal window in a nominal 12" masonry wall with "6T" series facing tile interior. This detail is similar in "4D" series with the exception of unit lengths.



FLUSH HEAD & JAMBS



RECESSED HEAD & JAMBS

FIG. 27

Section 7. OPENING DETAILS

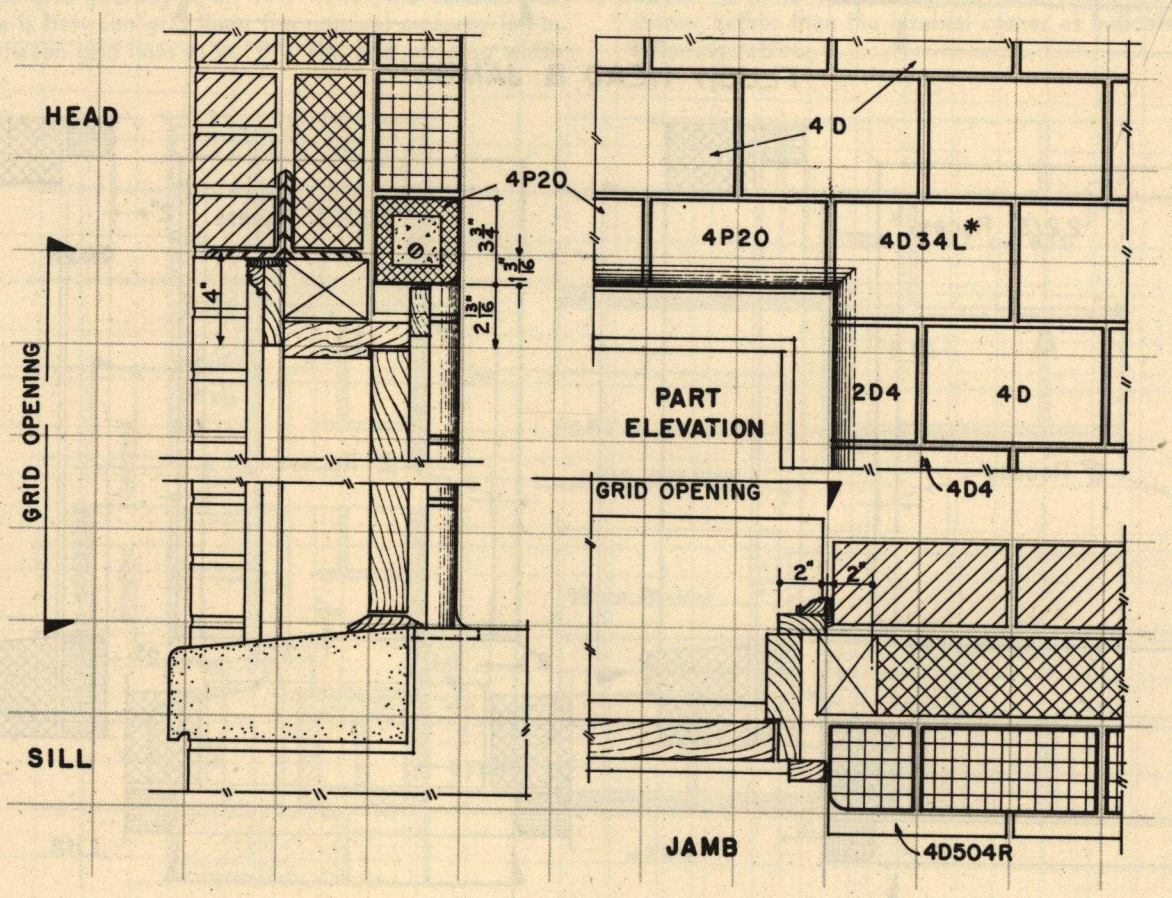
Fig. 28

"4D" AND "4S" SERIES

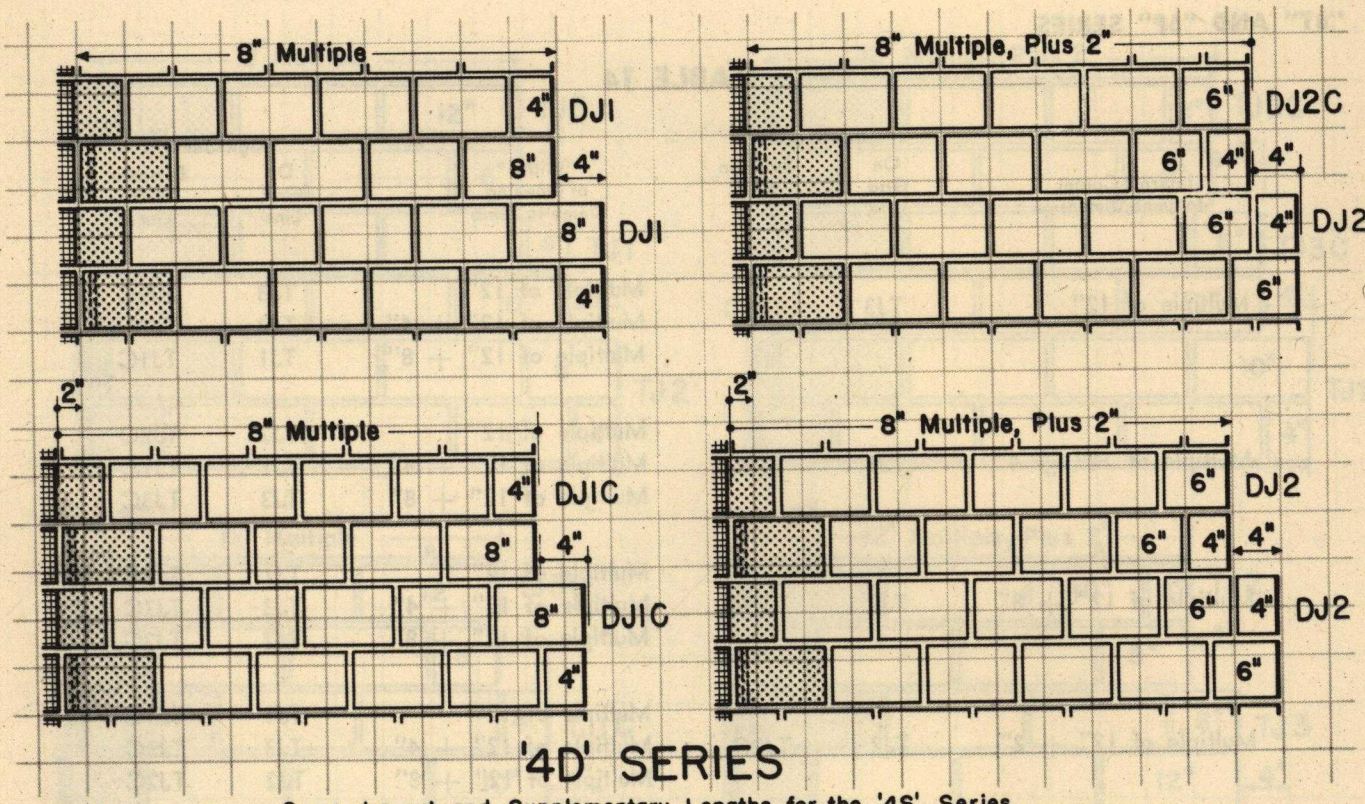
TABLE 13

Internal Corner to Jamb Dimension	Left Jamb * On Grid Line	Left Jamb * Between Grid Lines	Width of Opening Jamb to Jamb	Right Jamb * On Grid Line	Right Jamb * Between Grid Lines
Multiple of 8"	DJ1	DJ1C	Multiple of 8"	DJ1	DJ1C
			Multiple of 8" + 4"	DJ1	DJ1C
Multiple of 8" + 4"	DJ1	DJ1C	Multiple of 8"	DJ1	DJ1C
			Multiple of 8" + 4"	DJ1	DJ1C
Multiple of 8" + 2"	DJ2	DJ2C	Multiple of 8"	DJ2	DJ2C
			Multiple of 8" + 4"	DJ2	DJ2C
Multiple of 8" + 6"	DJ2	DJ2C	Multiple of 8"	DJ2	DJ2C
			Multiple of 8" + 4"	DJ2	DJ2C

* For corresponding jamb symbols in the "4S" series, substitute the prefix "S" for "D" in the above table.



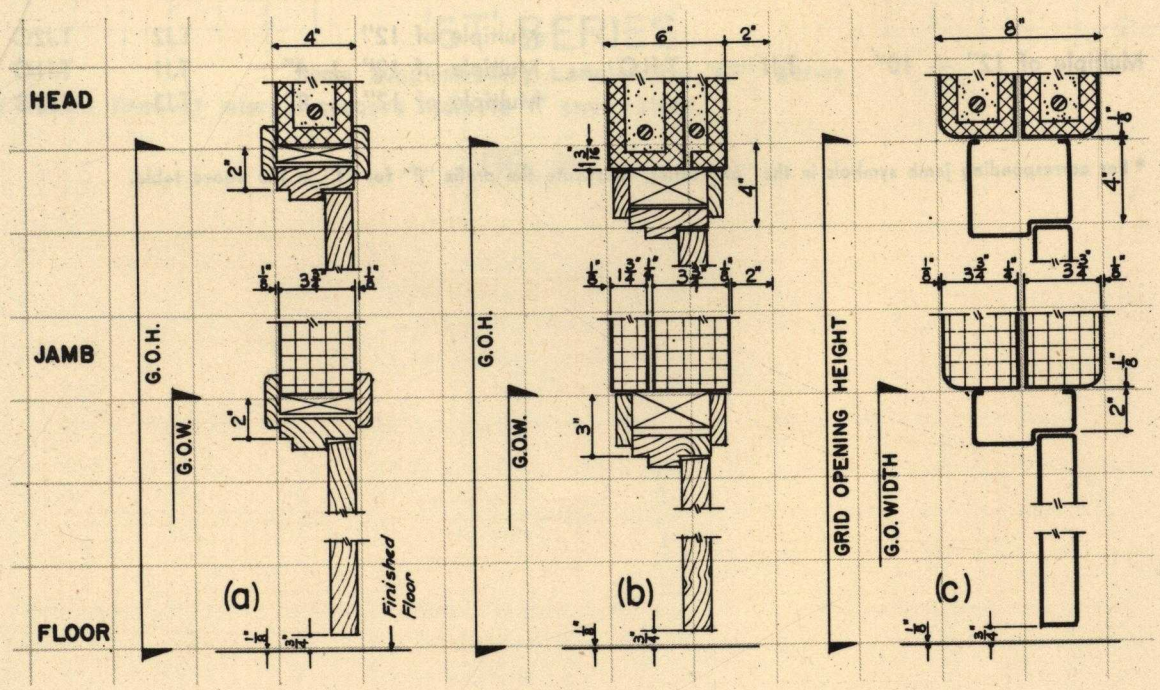
Modular detail showing a wood exterior door in a nominal 12" masonry wall with "4D" series facing tile interior. Various units are available for flush and recessed openings in all series as shown in Figs. 28 to 40.



Same Layout and Supplementary Lengths for the '4S' Series

NOTE: Dotted lines at internal corners indicate 1" cove return.

FIG. 28



Typical wood and metal interior door frame details for nominal 4", 6" and 8" facing tile partitions. Various types and sizes of frames are available for the tile opening details illustrated above and for partitions with facing tile on one side only.

Section 7. OPENING DETAILS

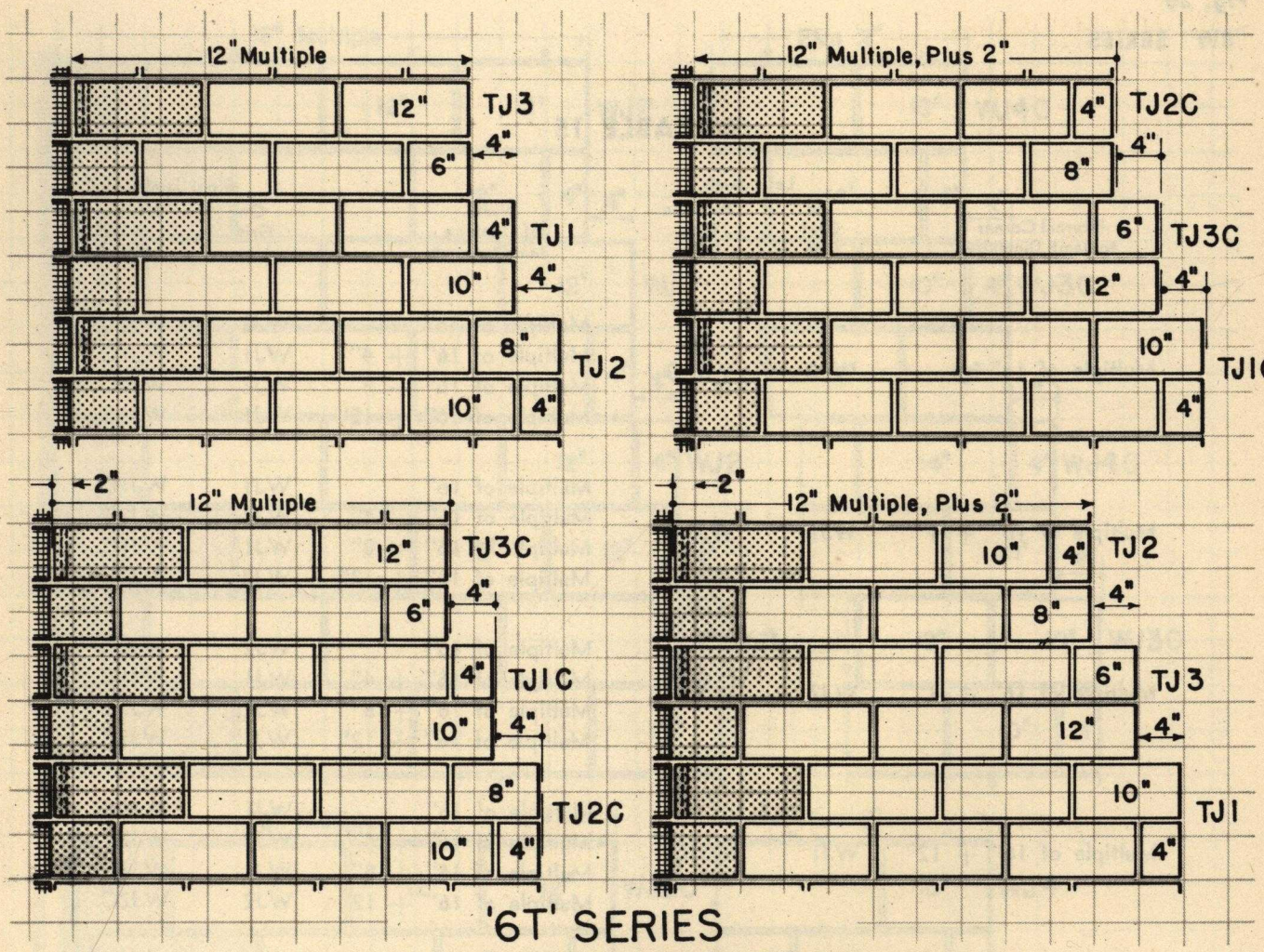
Fig. 29

"6T" AND "6P" SERIES

TABLE 14

Internal Corner to Jamb Dimension	Left Jamb * On Grid Line	Left Jamb * Between Grid Lines	Width of Opening Jamb to Jamb	Right Jamb * On Grid Line	Right Jamb * Between Grid Lines
Multiple of 12"	TJ3	TJ3C	Multiple of 12"	TJ3	TJ3C
			Multiple of 12" + 4"	TJ2	TJ2C
			Multiple of 12" + 8"	TJ1	TJ1C
Multiple of 12" + 4"	TJ1	TJ1C	Multiple of 12"	TJ2	TJ2C
			Multiple of 12" + 4"	TJ1	TJ1C
			Multiple of 12" + 8"	TJ3	TJ3C
Multiple of 12" + 8"	TJ2	TJ2C	Multiple of 12"	TJ1	TJ1C
			Multiple of 12" + 4"	TJ3	TJ3C
			Multiple of 12" + 8"	TJ2	TJ2C
Multiple of 12" + 2"	TJ2	TJ2C	Multiple of 12"	TJ1	TJ1C
			Multiple of 12" + 4"	TJ3	TJ3C
			Multiple of 12" + 8"	TJ2	TJ2C
Multiple of 12" + 6"	TJ3	TJ3C	Multiple of 12"	TJ3	TJ3C
			Multiple of 12" + 4"	TJ2	TJ2C
			Multiple of 12" + 8"	TJ1	TJ1C
Multiple of 12" + 10"	TJ1	TJ1C	Multiple of 12"	TJ2	TJ2C
			Multiple of 12" + 4"	TJ1	TJ1C
			Multiple of 12" + 8"	TJ3	TJ3C

* For corresponding jamb symbols in the "6P" series, substitute the prefix "P" for "T" in the above table.



'6T' SERIES

Same Supplementary Lengths for '6P' Series

NOTE: Dotted lines at internal corners indicate 1" cove return.

FIG. 29

Section 7. OPENING DETAILS

Fig. 30

"8W" SERIES

TABLE 15

Internal Corner to Jamb Dimension	Left Jamb On Grid Line	Left Jamb Between Grid Lines	Width of Opening Jamb to Jamb	Right Jamb On Grid Line	Right Jamb Between Grid Lines
Multiple of 16"	WJ2	WJ2C	Multiple of 16"	WJ2	WJ2C
			Multiple of 16" + 4"	WJ1	WJ1C
			Multiple of 16" + 8"	WJ2	WJ2C
			Multiple of 16" + 12"	WJ1	WJ1C
Multiple of 16" + 4"	WJ1	WJ1C	Multiple of 16"	WJ1	WJ1C
			Multiple of 16" + 4"	WJ2	WJ2C
			Multiple of 16" + 8"	WJ1	WJ1C
			Multiple of 16" + 12"	WJ2	WJ2C
Multiple of 16" + 8"	WJ2	WJ2C	Multiple of 16"	WJ2	WJ2C
			Multiple of 16" + 4"	WJ1	WJ1C
			Multiple of 16" + 8"	WJ2	WJ2C
			Multiple of 16" + 12"	WJ1	WJ1C
Multiple of 16" + 12"	WJ1	WJ1C	Multiple of 16"	WJ1	WJ1C
			Multiple of 16" + 4"	WJ2	WJ2C
			Multiple of 16" + 8"	WJ1	WJ1C
			Multiple of 16" + 12"	WJ2	WJ2C
Multiple of 16" + 2"	WJ4	WJ4C	Multiple of 16"	WJ3	WJ3C
			Multiple of 16" + 4"	WJ4	WJ4C
			Multiple of 16" + 8"	WJ3	WJ3C
			Multiple of 16" + 12"	WJ4	WJ4C
Multiple of 16" + 6"	WJ3	WJ3C	Multiple of 16"	WJ4	WJ4C
			Multiple of 16" + 4"	WJ3	WJ3C
			Multiple of 16" + 8"	WJ4	WJ4C
			Multiple of 16" + 12"	WJ3	WJ3C
Multiple of 16" + 10"	WJ4	WJ4C	Multiple of 16"	WJ3	WJ3C
			Multiple of 16" + 4"	WJ4	WJ4C
			Multiple of 16" + 8"	WJ3	WJ3C
			Multiple of 16" + 12"	WJ4	WJ4C
Multiple of 16" + 14"	WJ3	WJ3C	Multiple of 16"	WJ4	WJ4C
			Multiple of 16" + 4"	WJ3	WJ3C
			Multiple of 16" + 8"	WJ4	WJ4C
			Multiple of 16" + 12"	WJ3	WJ3C

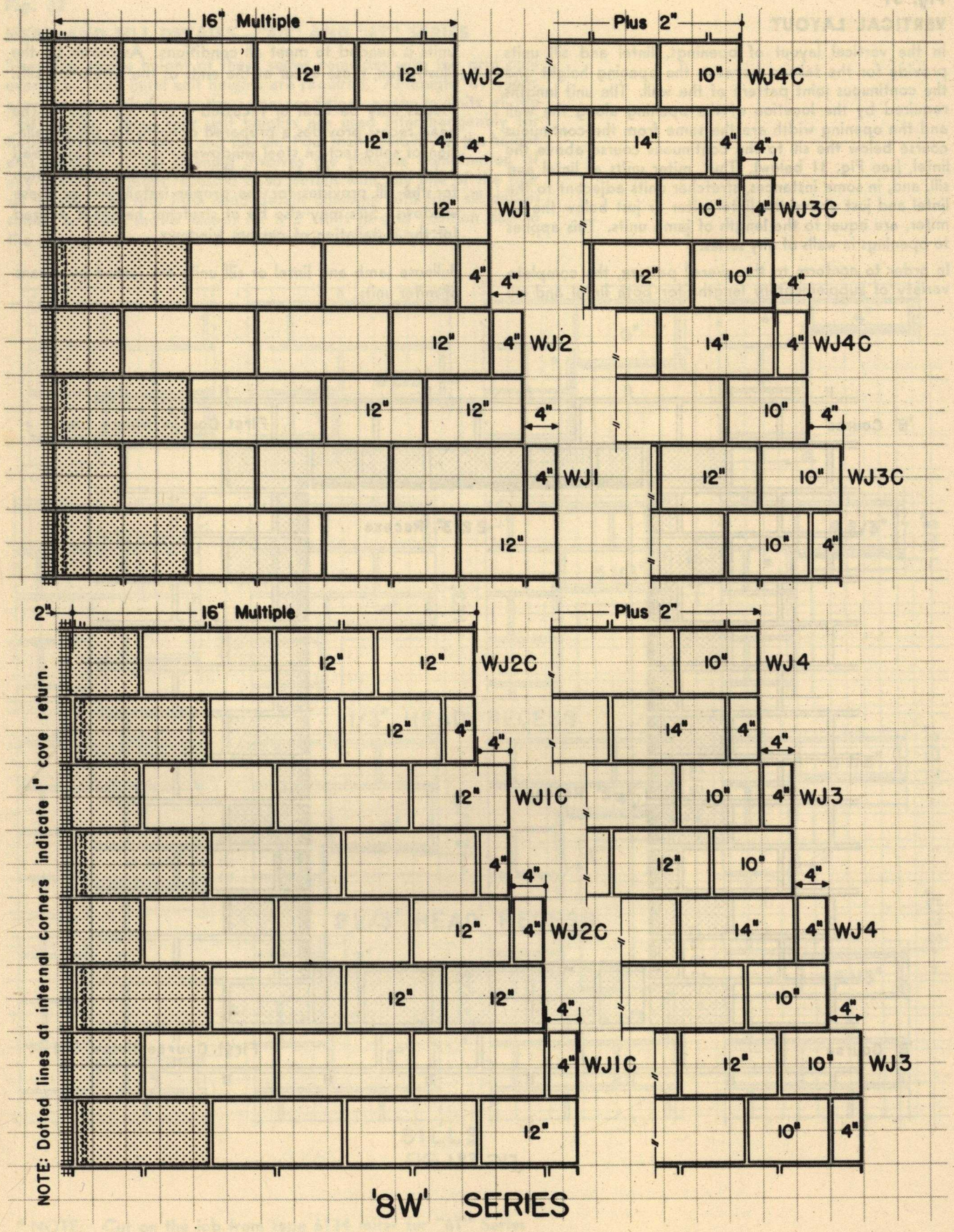

16" Multiple
Plus 2"
12"
10"
14"
4"
WJ2
WJ4C
WJ1
WJ3C
WJ2C
WJ4
WJ1C
WJ3
2"
NOTE: Dotted lines at internal corners indicate 1" cove return.
'8W' SERIES

FIG. 30

Section 7. OPENING DETAILS

Fig. 31

VERTICAL LAYOUT

In the vertical layout of openings, lintel and sill units provide for the takeup between the opening height and the continuous joint pattern of the wall. Tile unit lengths required by the location of the opening along the wall and the opening width are the same from the continuous course below the sill to the continuous course above the lintel, (see Fig. 31 below). Thus, miter units at lintel and sill, and, in some instances, stretcher units adjacent to the lintel and just above the lintel miter or just below the sill miter, are equal to the length of jamb units. This applies to openings in walls of any series.

In order to conform to the overall pattern, the complete variety of supplementary lengths for both lintel and sill units is needed to meet all conditions. As shown by the illustration, these occur at the ends of the lintels and sills.

Heads may be flush or recessed 1 1/3" or 2 2/3". The head recess provides a prepared opening for the installation of solid-section steel windows or space for overhead balances for double-hung windows. A single grid position for the sill provides for the proper installation of these windows. Sills may also be of stretcher height if desired for the installation of custom windows.

Bullnose jamb and lintel or sill units are joined by means of miter units.

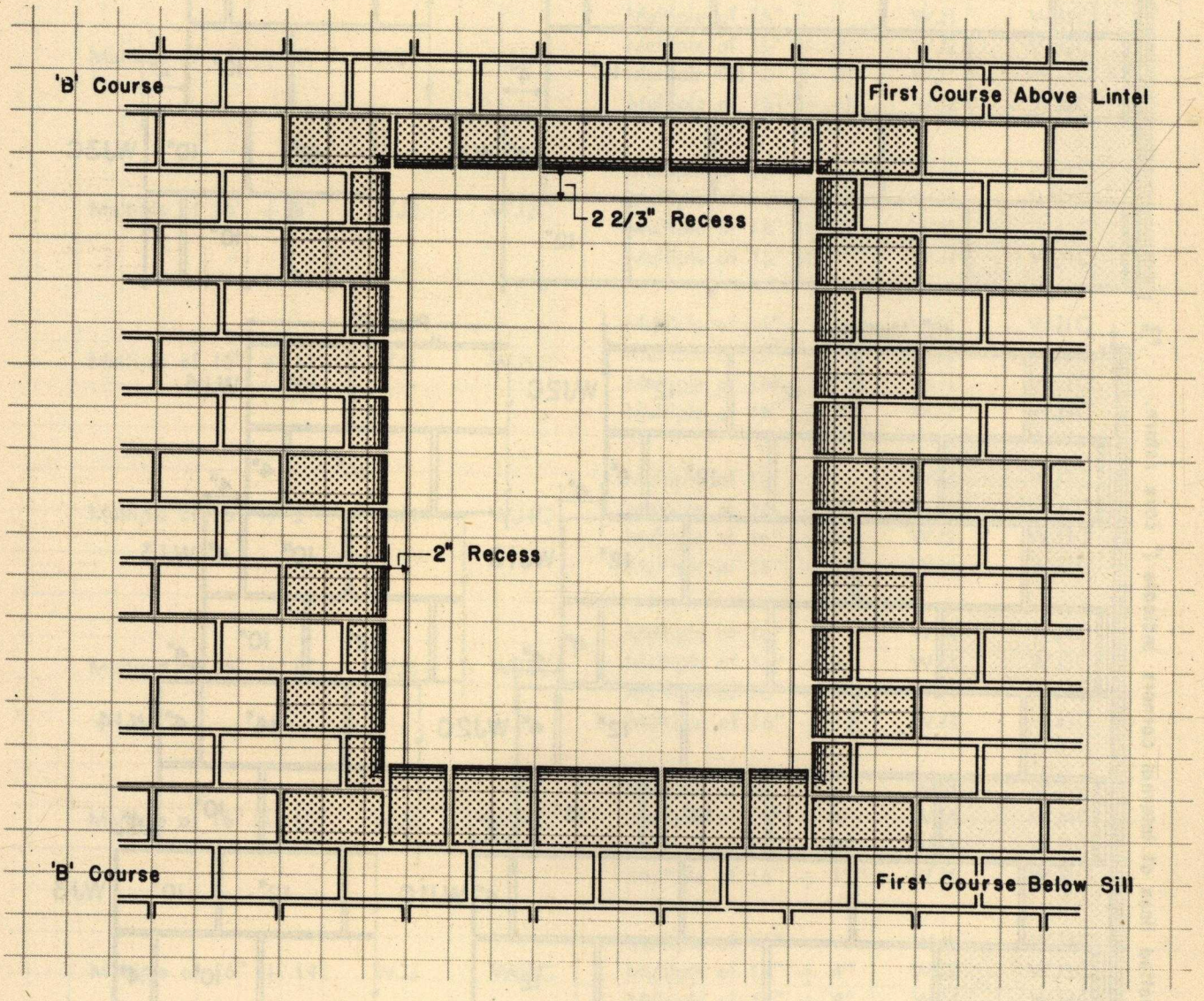


FIG. 31

Section 7. OPENING DETAILS

Fig. 32

HEAD AND SILL DETAILS—"4D" AND "6T" SERIES

Since the course height of these series coincides with the grid only every 16", four lintel unit heights are required. Although "6T" units are shown in this figure, the same conditions apply to units of the "4D" series. These four unit heights are used interchangeably for flush and recessed heads and the sill. Four inch flexibility in the height and location of the opening involves the possible combination of any one of the eight recessed head details with any one of the four sill details. The four flush head details combine with four sill details similar to those shown except for a 2" shift in grid position due to the change from a recessed to a flush jamb, see Fig, 27.

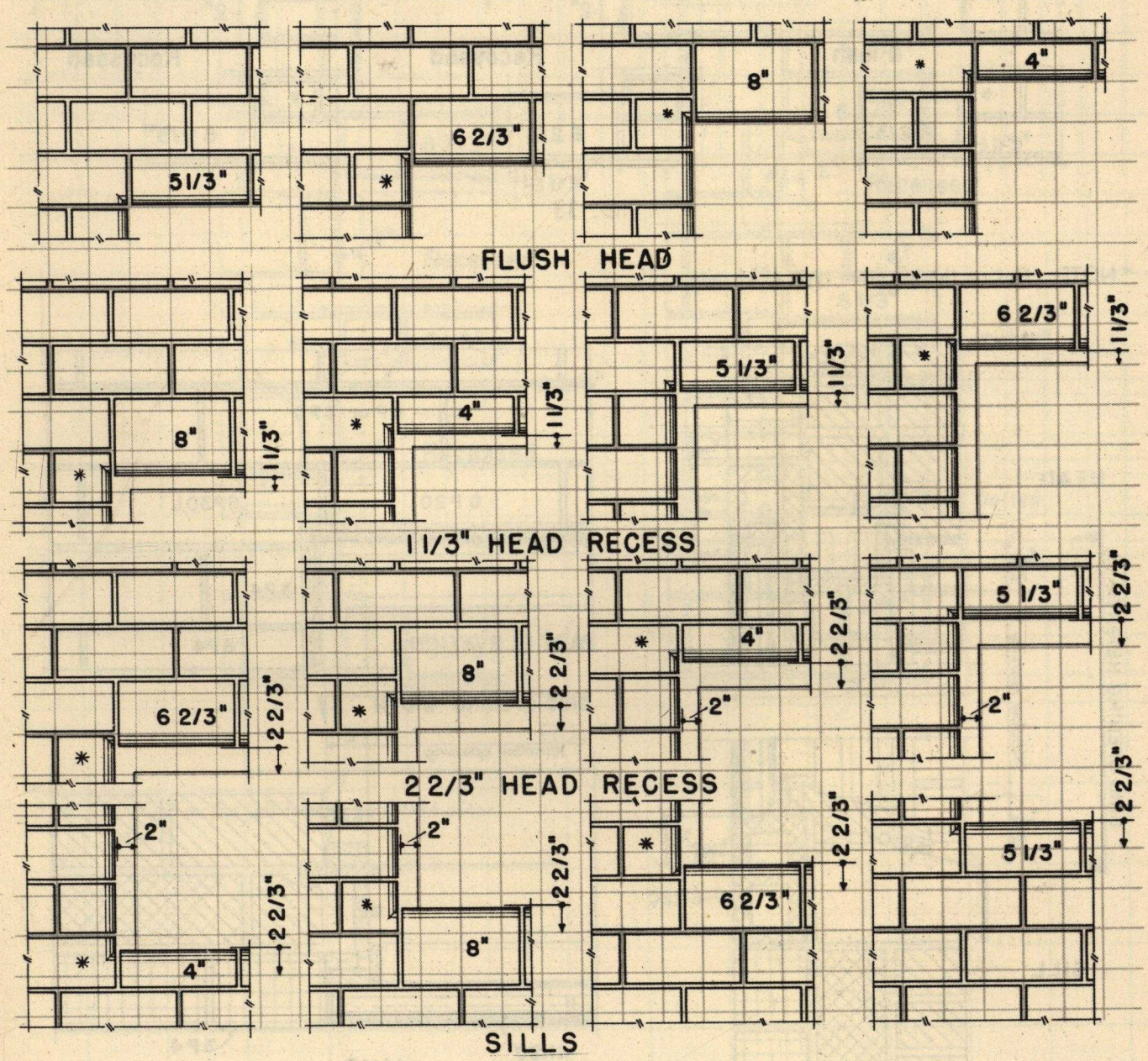


FIG. 32

* NOTE: Cut on the job from type 6T34 miter for "6T" Series or from 4D34 miter for "4D" Series.

Section 7. OPENING DETAILS

Fig. 33

HEAD AND SILL DETAILS—"6P" SERIES

Since the 4" course height provides 4" flexibility, only one lintel unit height is required for each head detail, and only one sill unit for the single sill detail. These lintel and sill units are the same as for the "6T" series. If preferred in the "6P" series, brick size sills, 2 2/3" high, may be substituted for the 6 2/3" sills shown.

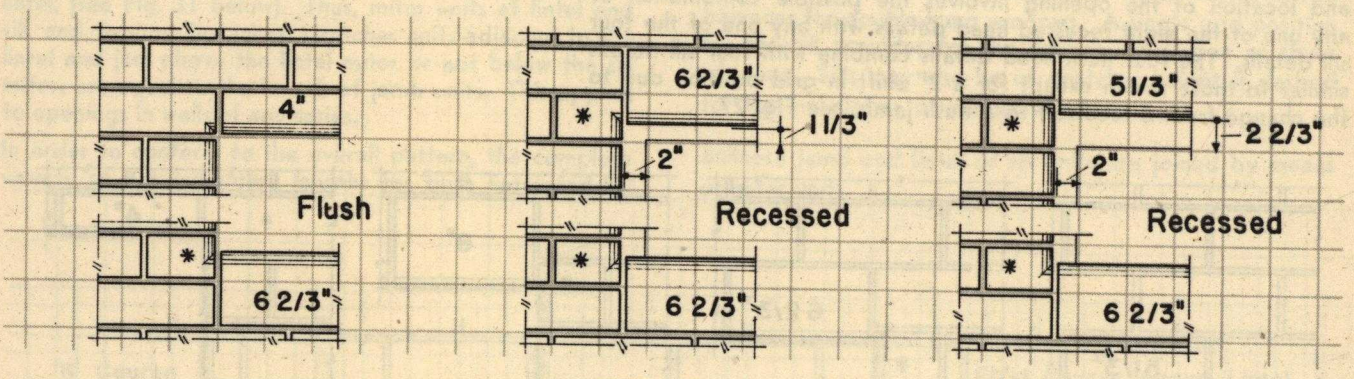
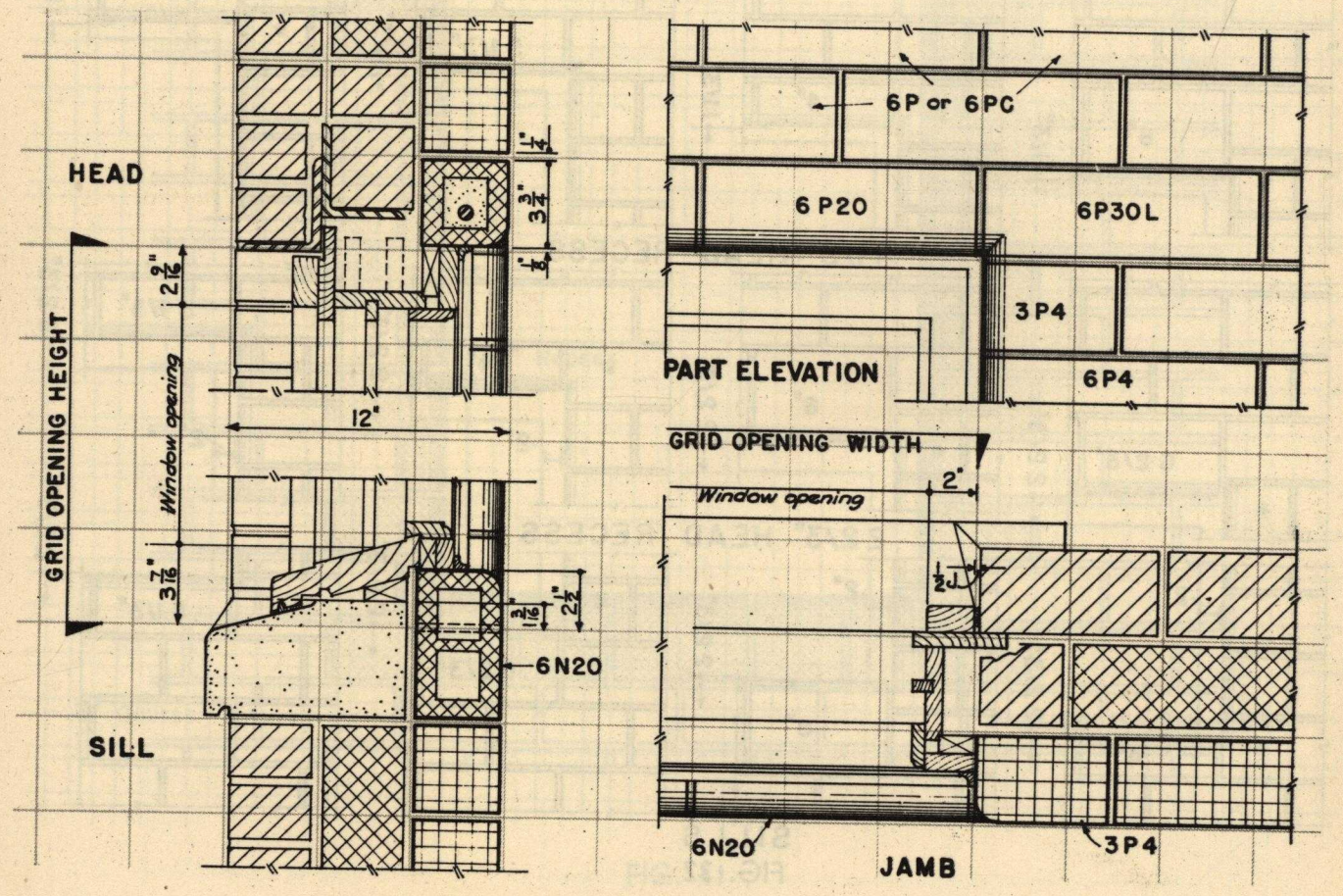


FIG. 33

* NOTE: Cut on the job from type 6P34 miter.



A typical modular detail for the installation of a double-hung wood window in a composite 12" masonry wall is shown above. The "6P" series facing tile is utilized as a portion of the load-bearing wall. Similar shapes are available in all series, or nominal 2" "soaps" may be used for facing tile veneer construction, if desired.

Section 7. OPENING DETAILS

Fig. 34

HEAD AND SILL DETAILS—"8W" SERIES

Since this course height coincides with the grid every 8", four lintel unit heights and two sill unit heights are required, one of which (6 2/3") is the same for both sills, with the addition of a 4" high supplementary stretcher in one case. The dotted lines in the sill details indicate units for flush jambs.

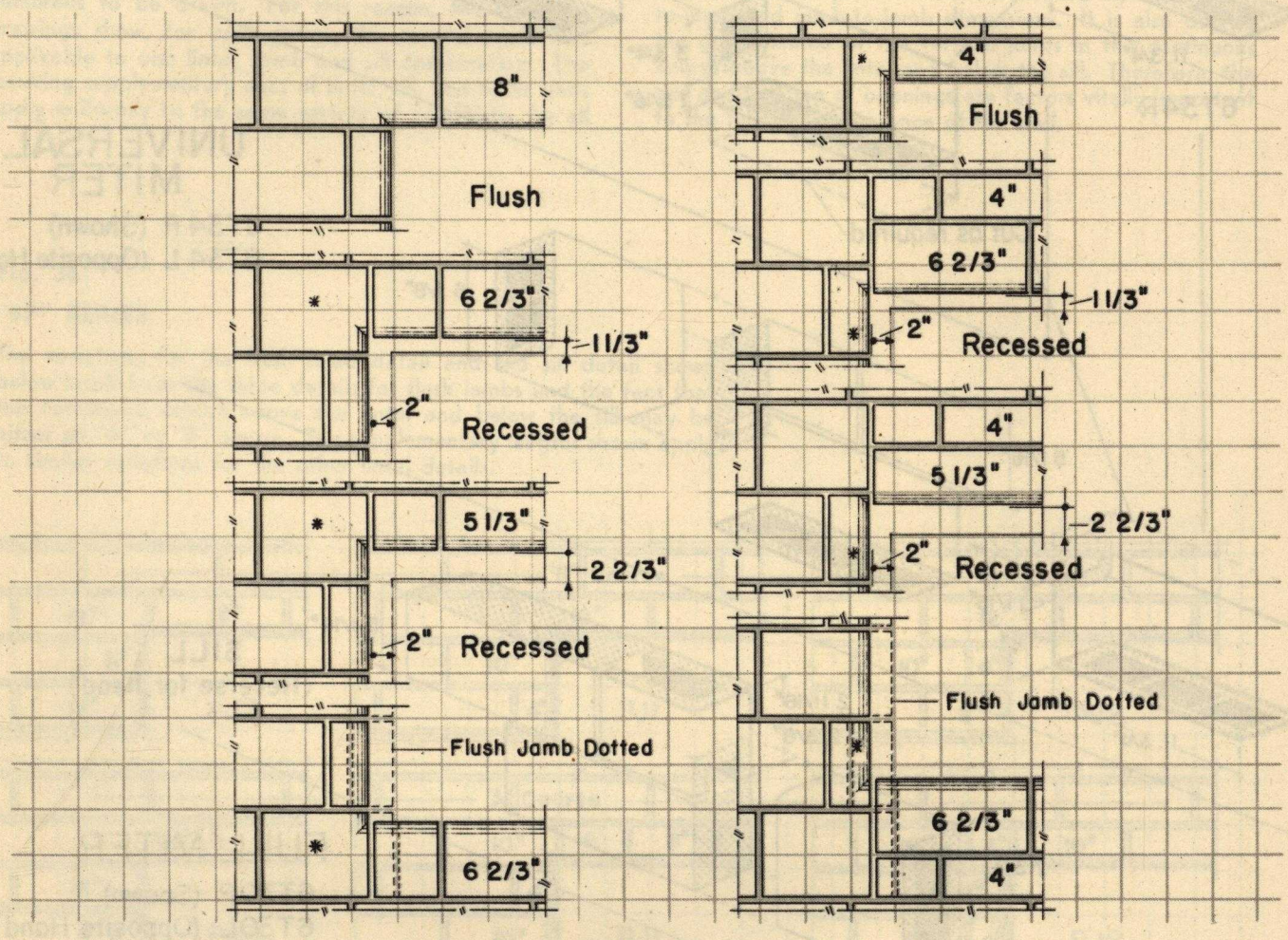


FIG. 34

* NOTE: Cut on the job from type 6W34 miter.

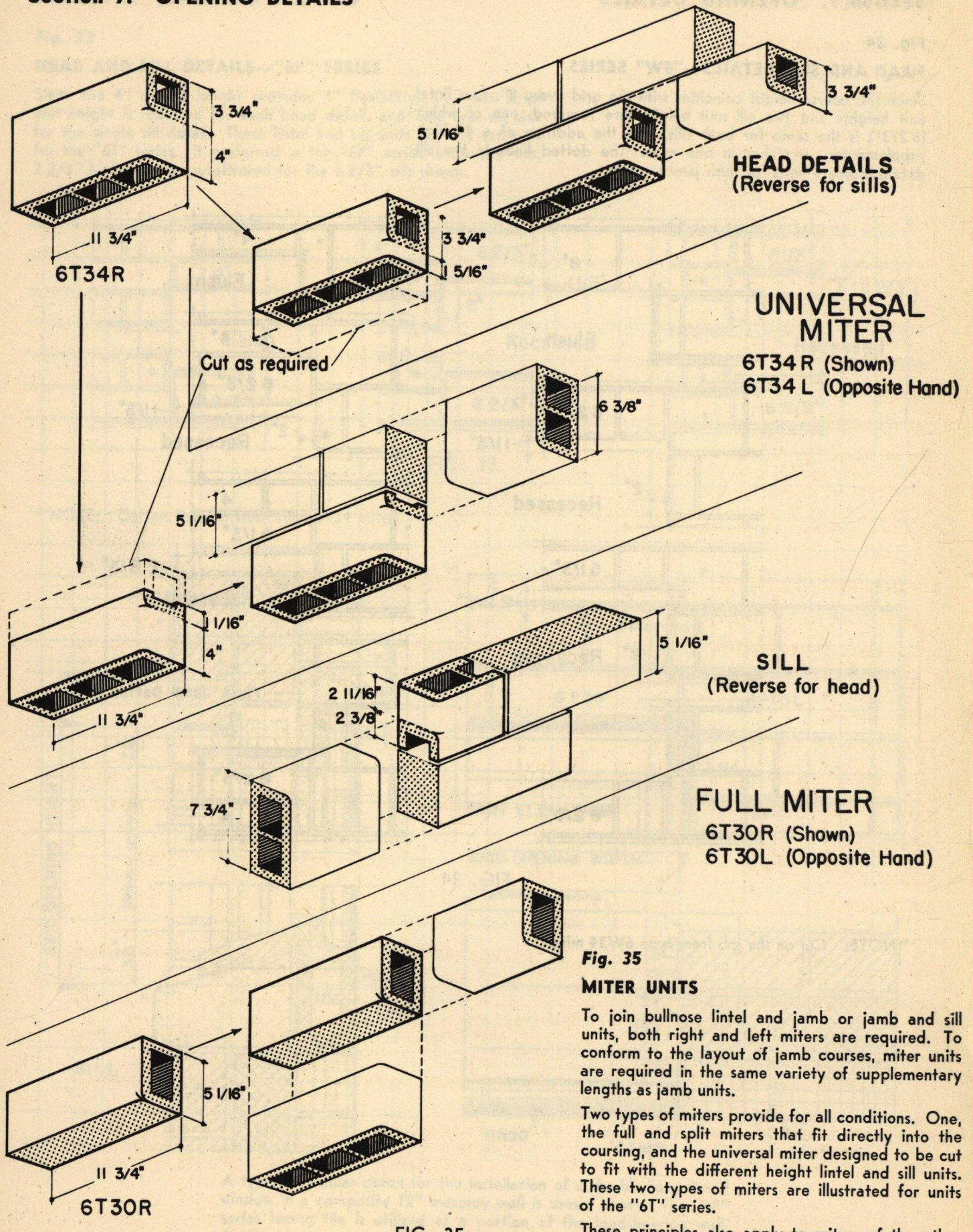


FIG. 35

Fig. 35

MITER UNITS

To join bullnose lintel and jamb or jamb and sill units, both right and left miters are required. To conform to the layout of jamb courses, miter units are required in the same variety of supplementary lengths as jamb units.

Two types of miters provide for all conditions. One, the full and split miters that fit directly into the coursing, and the universal miter designed to be cut to fit with the different height lintel and sill units. These two types of miters are illustrated for units of the "6T" series.

These principles also apply to miters of the other series.

Section 7. OPENING DETAILS

OPENING LAYOUT

In order to provide the necessary 4" flexibility in the size and location of openings, the lintel, sill, and jamb details previously shown are subject to a wide variety of combinations. For example, any one of the lintel details may be used with any one sill detail. Moreover, the lintel and sill details used may combine, at each jamb, with any jamb detail. Manifestly, these combinations are too numerous to be drawn. For this reason, the following drawings show, for each series, the several conditions applicable to one lintel, jamb and sill combination. The resulting supplementary sizes of lintel, sill, and miter units apply uniformly to the same variety of conditions for all other combinations in the series. Therefore, from these details the designer can ascertain the appearance of any combination that may result from the dimensions on the plan giving the size and location of the opening.

Reference to Figs. 36 to 40, inclusive, will show that some opening details are superior to others in appearance. This results from the jamb details determined by the corner-to-jamb and jamb-to-jamb dimensions. It is also due to the grid position of the vertical joints in the continuous course above the lintel and below the sill. Therefore, the size and location of openings are factors vitally important to the finished appearance of the wall.

Fig. 36

"6P" SERIES

The variations for the flush head detail and the sill detail shown below result from the three details for flush jambs and the fact that the continuous course above the lintel and below the sill may be either an "A" or "B" course. The supplementary lengths shown apply to similar variations for the other lintel details.

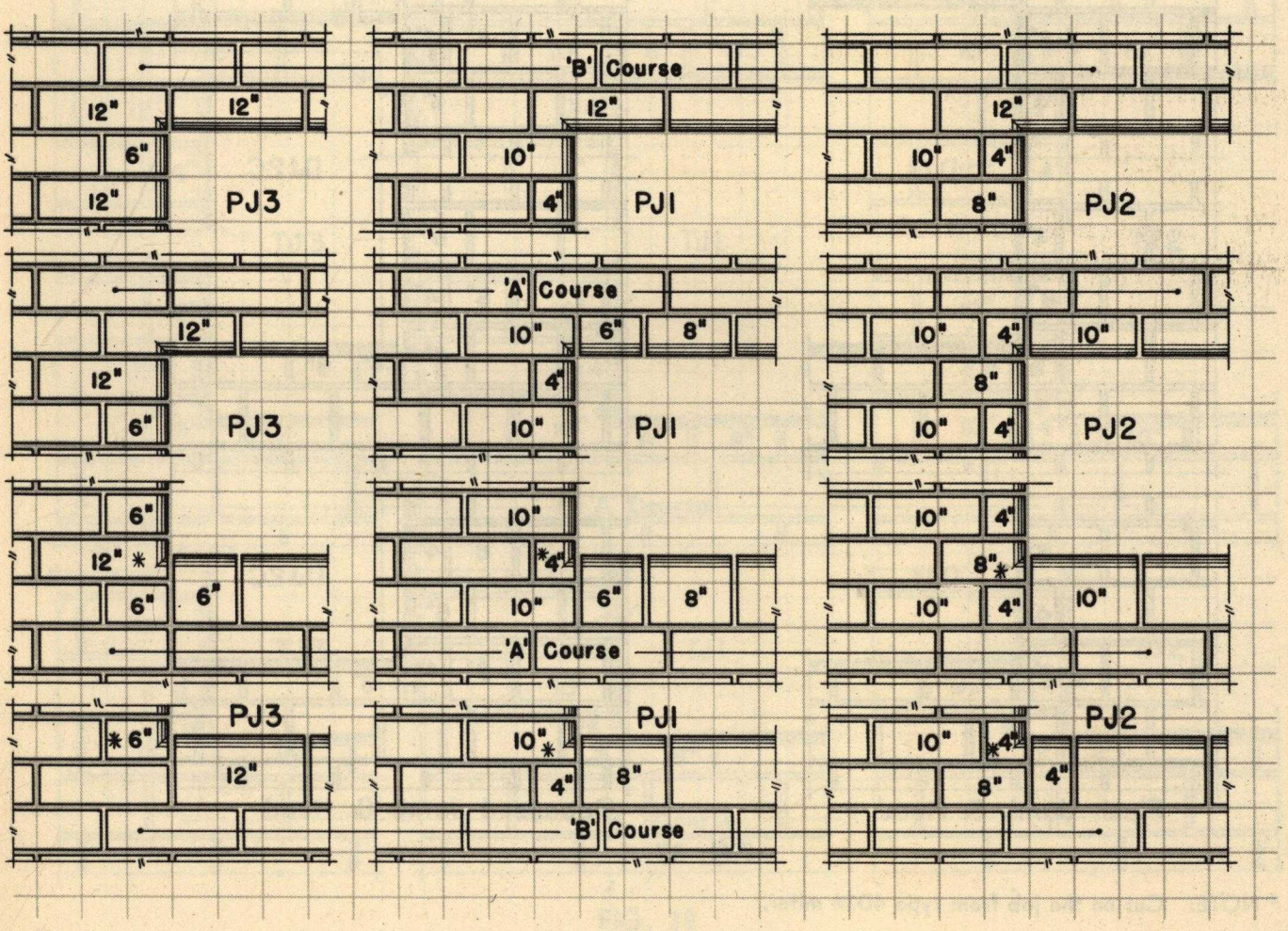


FIG. 36

* NOTE: Cut on the job from type 6P34 miter.

Section 7. OPENING DETAILS

Fig. 37

"4D" SERIES

The supplementary lengths of lintel, sill, and miter units required for openings in walls of "4D" series units are given in the figure below. Other unit lintel heights, see Fig. 32, may be substituted without changing these length relationships. When necessary, flush jambs may be combined with recessed lintels, or recessed jambs with flush lintels without involving the use of different supplementary lengths.

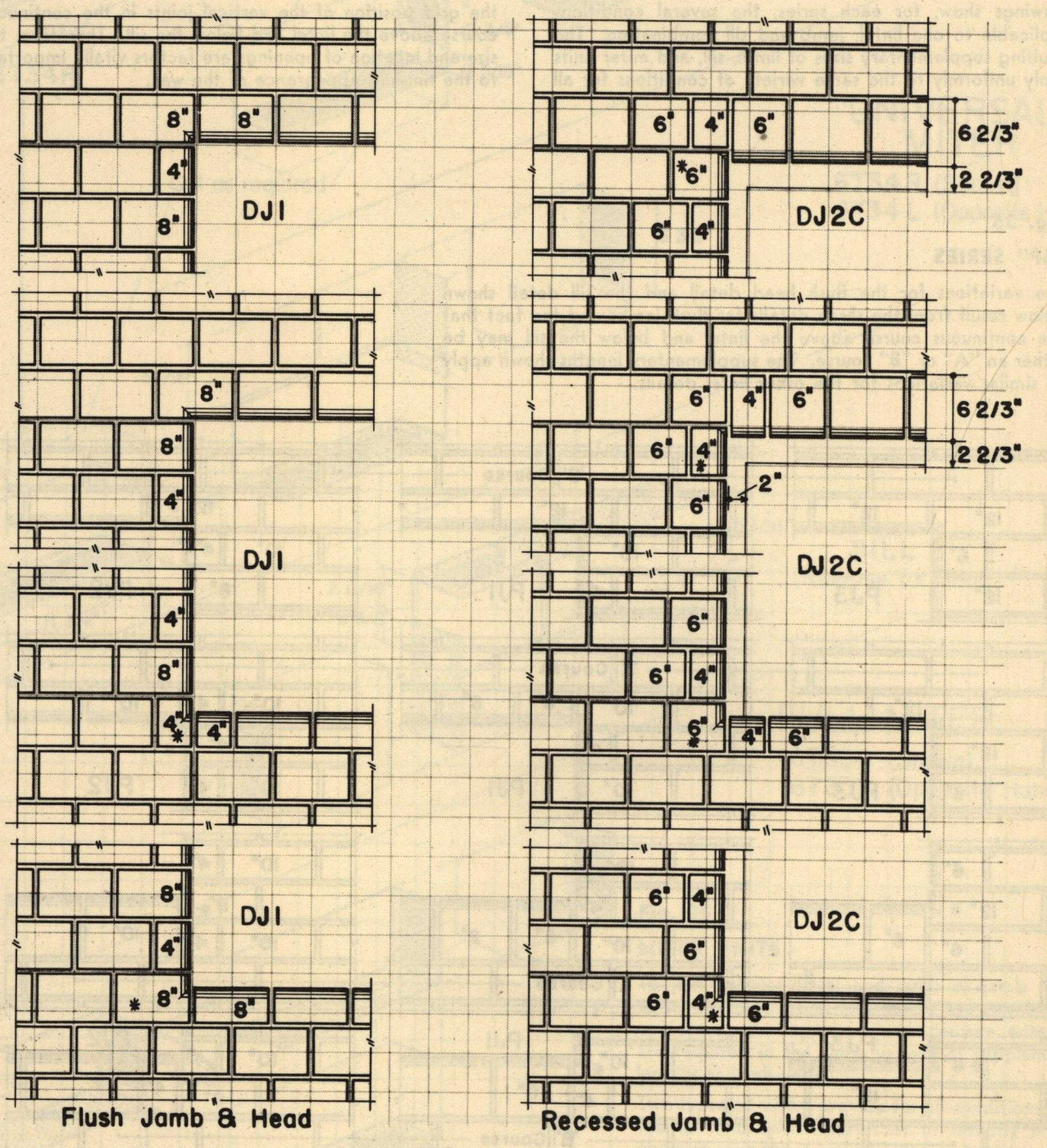


FIG. 37

* NOTE: Cut on the job from type 4D34 miter.

Section 7. OPENING DETAILS

Fig. 38

"6T" SERIES

Supplementary lengths of lintel, sill and miter units for openings in walls of "6T" series units are shown below for one head and sill and three flush jamb conditions.

Note how, in this figure, the use of 8T31 split miters in the two top right-hand lintels and the middle left-hand lintel, eliminates the vertical joint just above the jamb and thereby improve the finished appearance of the opening. The 8T31 miter units are 16" long with the miter in the center. Either or both ends are then cut as required.

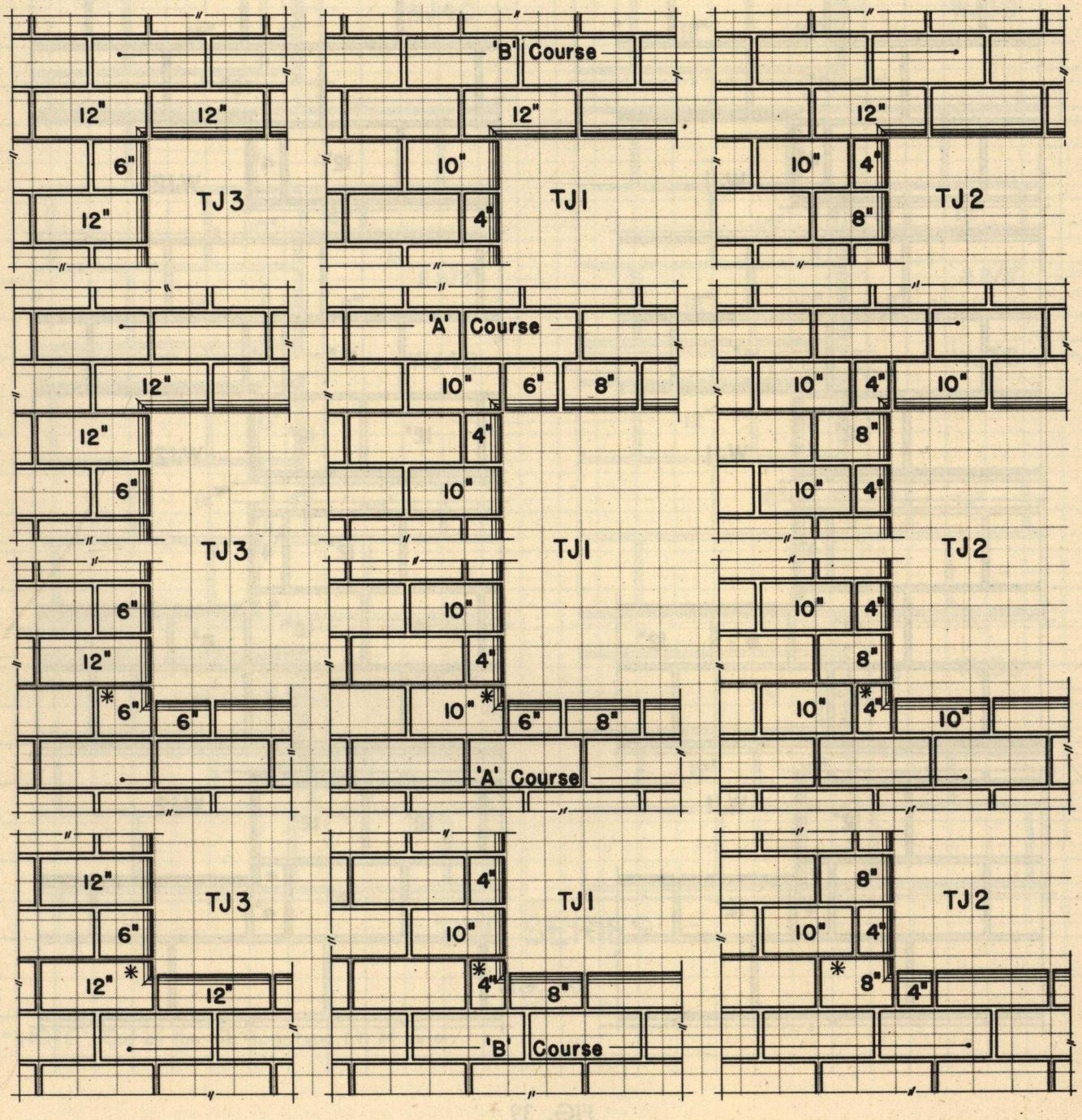


FIG. 38

* NOTE: Cut on the job from type 6T34 miter.

Section 7. OPENING DETAILS

Figs. 39 and 40

"8W" SERIES

The supplementary lengths of lintel, sill, and miter units for openings in walls of "8W" series are shown below for one sill and lintel and two flush jamb conditions, and on the following page, Fig. 40, for a 2 2/3" recessed head and two recessed jambs with the same sill condition. The supplementary length relationships illustrated apply without change to the other height lintel units shown in Fig. 34.

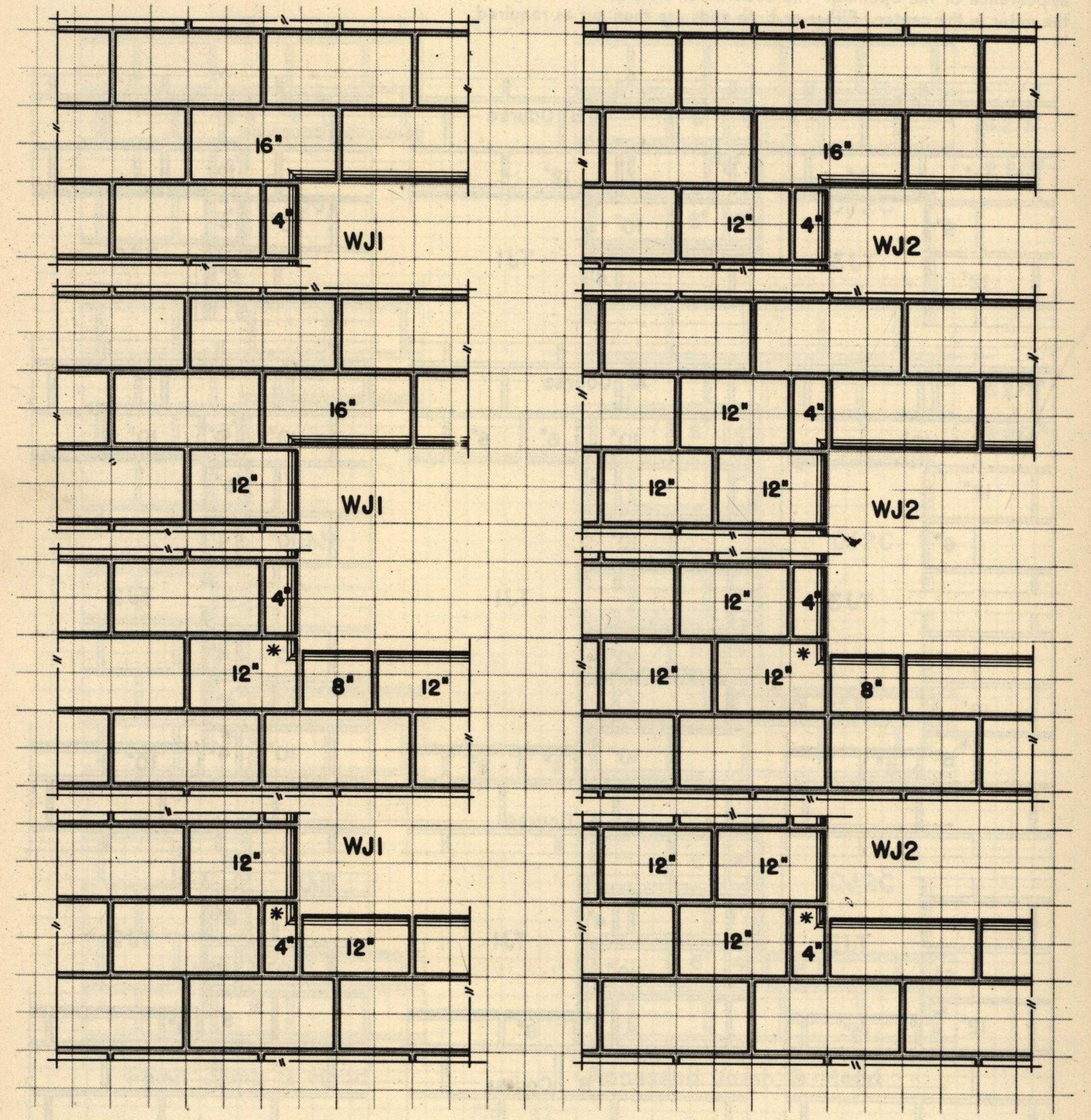
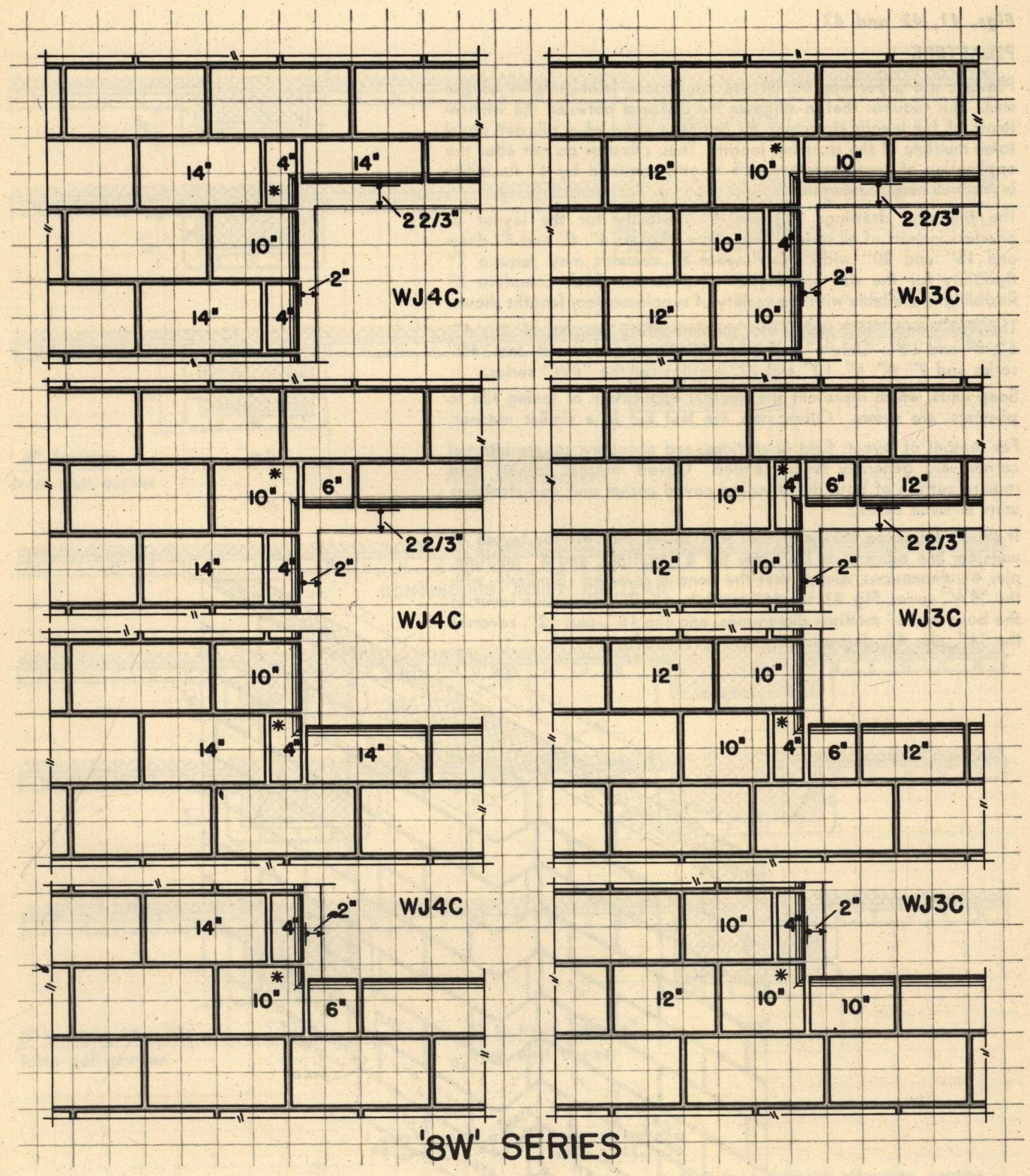


FIG. 39

* NOTE: Cut on the job from type 6W34 miter.



'8W' SERIES

FIG. 40

* NOTE: Cut on the job from type 6W34 miter.

Section 8. PILASTERS AND WING WALLS

Figs. 41, 42 and 43

PILASTERS

Pilasters are superimposed on the continuous joint pattern of the wall. This requires that in all cases the distance between the vertical joints of full length stretchers on opposite sides of a pilaster equal some multiple of the stretcher length. Thus, pilasters do not alter the application of supplementary unit lengths required by 4" flexibility in the wall length dimension.

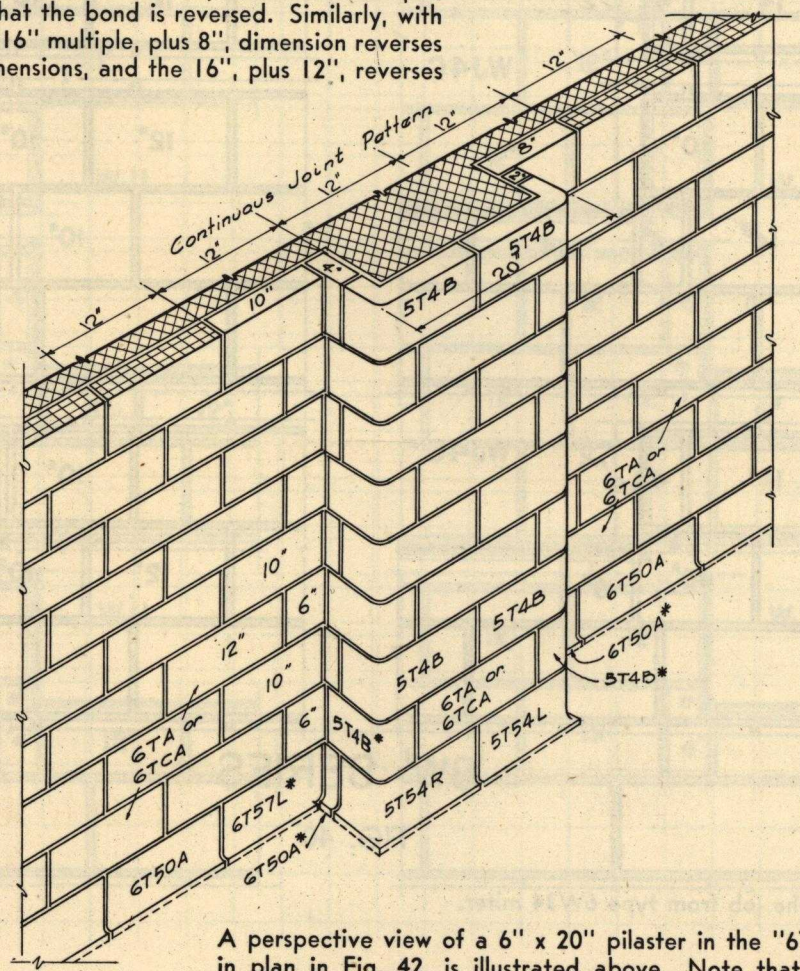
The following drawings illustrate 4" flexibility for the layout of pilasters in units of all series. They show pilasters 4", 6" and 8" deep and 16" and 20" wide. The layout of columns may require 2" flexibility for the size and layout of pilasters. Such complete 2" flexibility is available with the variety of supplementary lengths shown.

The "6T" and "6P" series use supplementary lengths of 2", 4", 6", 8" and 10". Only 4" and 6" lengths are needed with the "4D" series and 2", 4", 6", 10" and 12" lengths for the "8W" series.

Soap units, which represent the general application of facing tile to pilasters, are shown. Other sizes are laid out in a similar manner.

For reasons of layout, field operations, and economy, square internal corners are generally recommended. Coved internal corners may require cutting of both the standard coved corner unit and stretcher units in some cases.

It should be noted that with the "4D" series, Fig. 41, the layout of units for the pilasters is the same for 8" multiple, and 8" multiple, plus 4", dimensions, except that the bond is reversed. Similarly, with the "8W" series, Fig. 43, the 16" multiple, plus 8", dimension reverses the bond of 16" multiple dimensions, and the 16", plus 12", reverses the 16", plus 4", dimension.



A perspective view of a 6" x 20" pilaster in the "6T" series, shown in plan in Fig. 42, is illustrated above. Note that the continuous joint pattern is maintained as indicated at the top of the detail. This applies to all standard tile thicknesses as well as the 2" "soaps" shown.

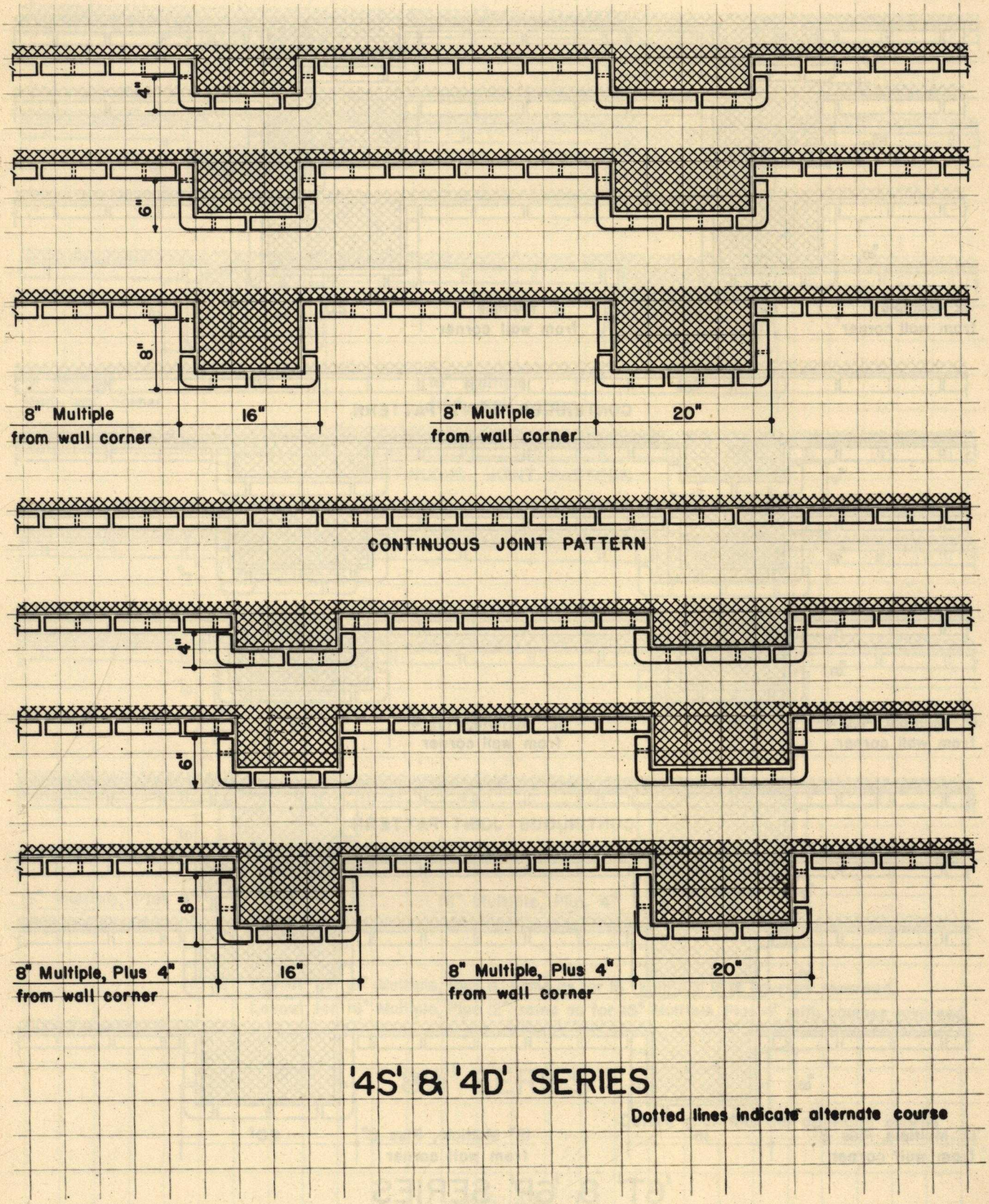

4"
6"
8"
8" Multiple
from wall corner
16"
8" Multiple
from wall corner
20"
CONTINUOUS JOINT PATTERN
4"
6"
8"
8" Multiple, Plus 4"
from wall corner
16"
8" Multiple, Plus 4"
from wall corner
20"
'4S' & '4D' SERIES
Dotted lines indicate alternate course

FIG. 41

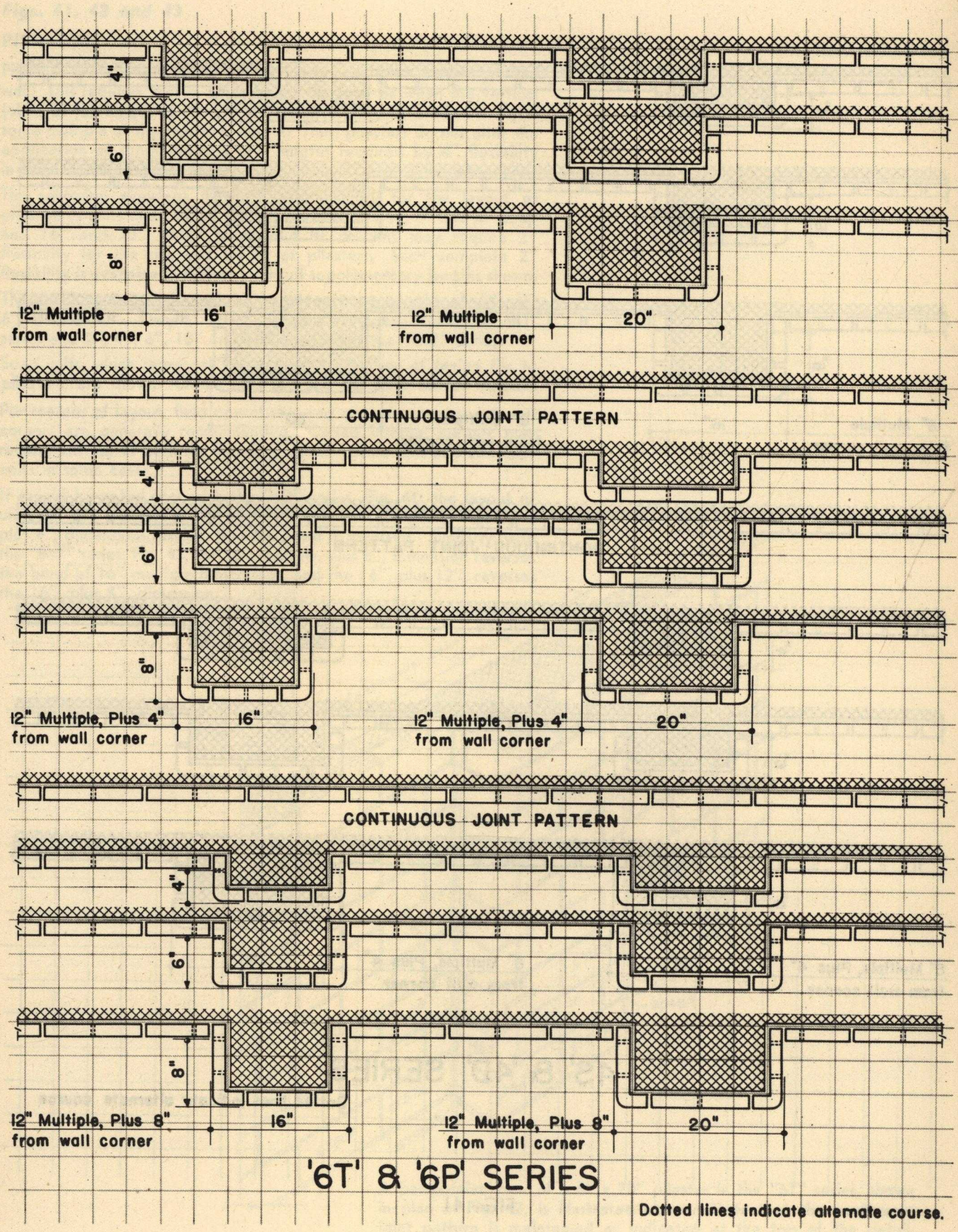
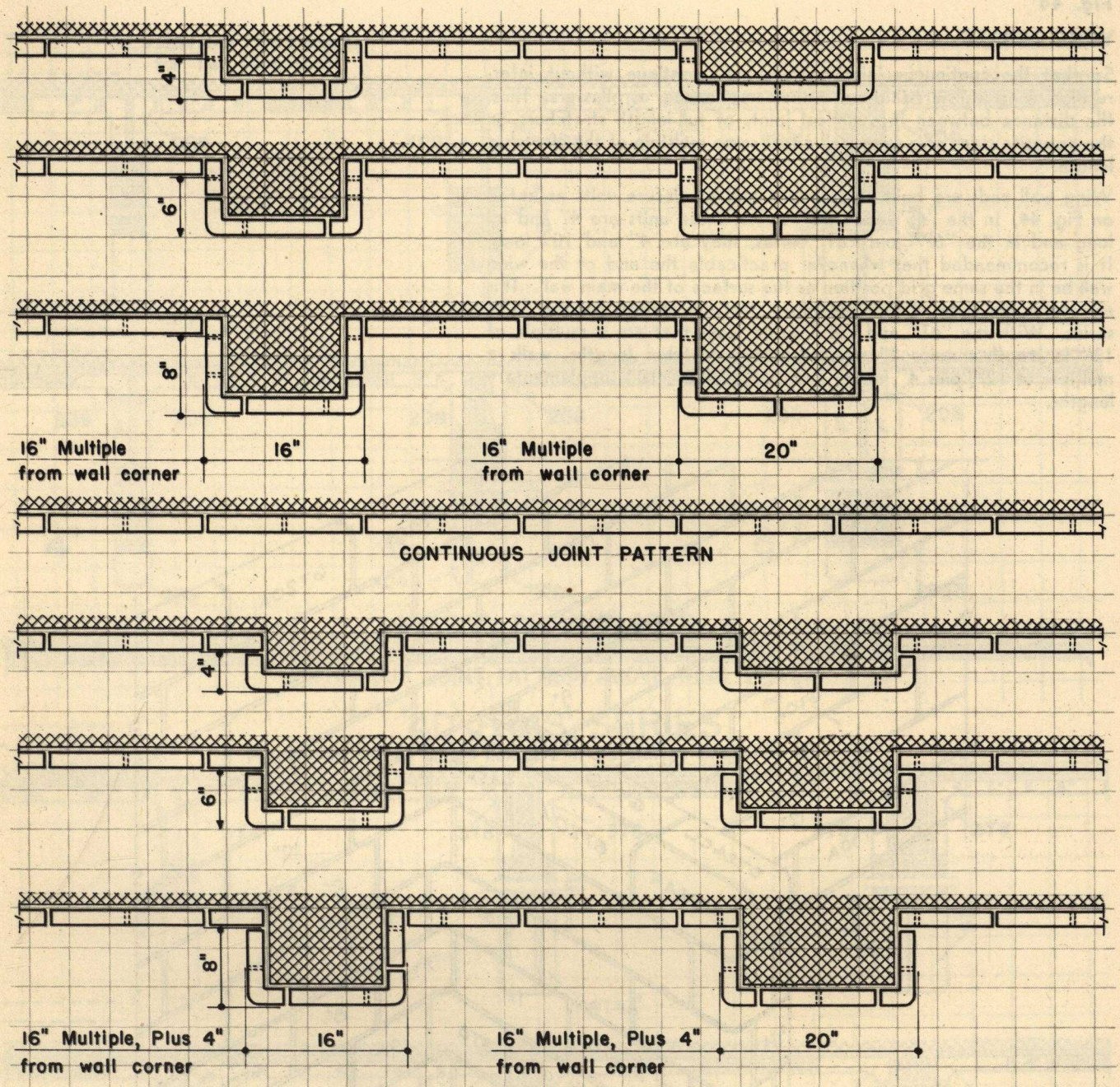

4"
6"
8"
12" Multiple from wall corner
16"
12" Multiple from wall corner
20"
CONTINUOUS JOINT PATTERN
4"
6"
8"
12" Multiple, Plus 4" from wall corner
16"
12" Multiple, Plus 4" from wall corner
20"
CONTINUOUS JOINT PATTERN
4"
6"
8"
12" Multiple, Plus 8" from wall corner
16"
12" Multiple, Plus 8" from wall corner
20"
'6T' & '6P' SERIES
Dotted lines indicate alternate course.

FIG. 42



NOTE: Layout for 16" Multiple, Plus 8" same as for 16" Multiple with courses reversed.
Layout for 16" Multiple, Plus 12" same as for 16" Multiple, Plus 4" with courses reversed.

'8W' SERIES

Dotted lines indicate alternate course

FIG. 43

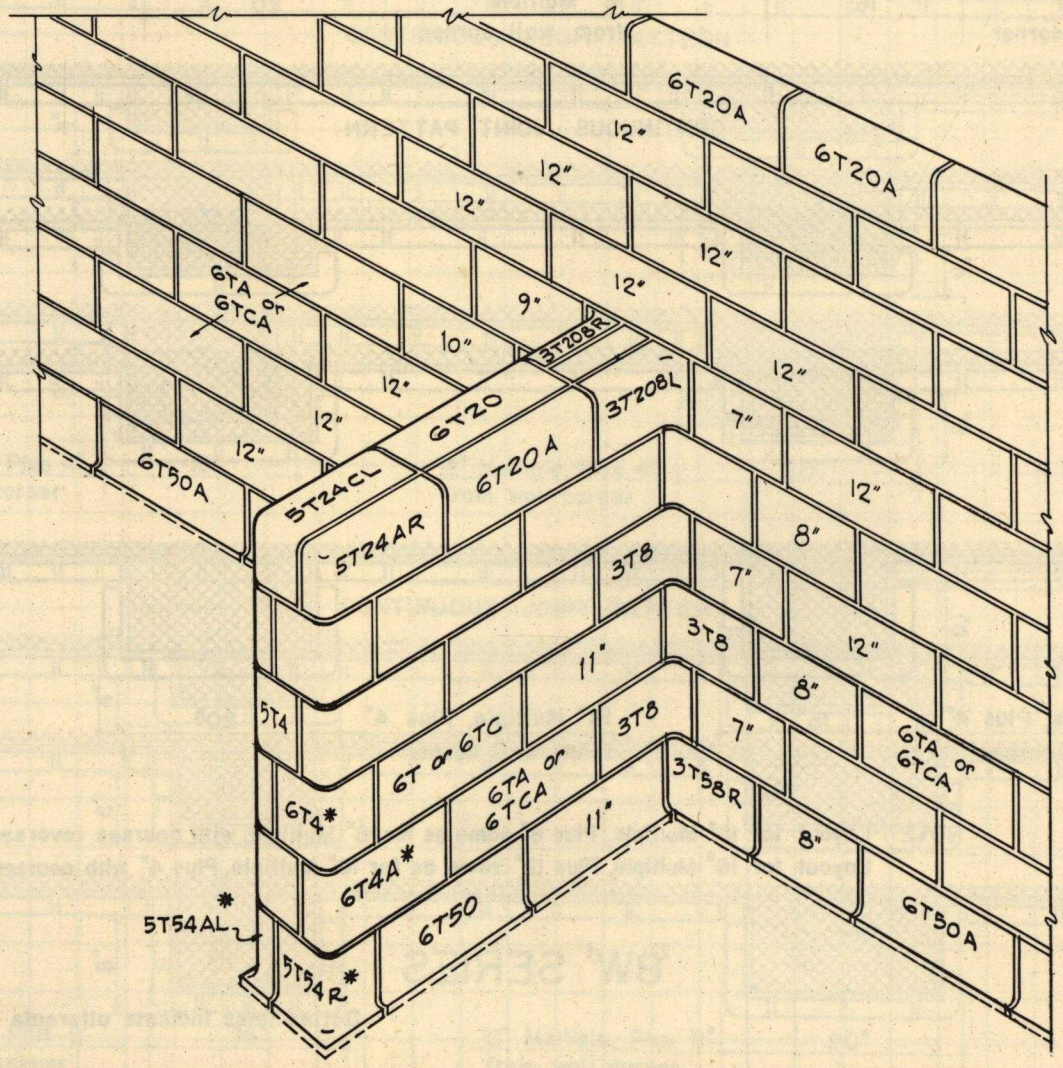
Section 8. PILASTERS AND WING WALLS

Fig. 44

WING WALLS

So that the continuous joint pattern may continue without interruption, wing walls are laid out in the same manner as pilasters. Thus, the distance between the vertical joints of full-length stretchers on the opposite sides of a wing wall equal some multiple of the stretcher length.

Wing wall ends are built of standard end or closure units as noted on Fig. 44. In the "4S" and "4D" series, these units are 4" and 8" long and in the "6P" and "6T" series, they are 4" and 10" long. It is recommended that whenever practicable the end of the wing wall be in the same grid position as the surface of the main wall. This eliminates the need of supplementary stretcher lengths for the "4D" series. With the "6T" and "6P" series, walls that are a multiple of 12" in length require 8" supplementary stretcher lengths, walls a multiple of 12", plus 4", none; and 12", plus 8", 10" supplementary lengths.



A typical 6" wing wall in the "6T" series, shown in plan at the bottom center of Fig. 44, is shown above. The full length stretcher units above the wing wall illustrate the continuous joint pattern which is maintained throughout the length of the main wall.

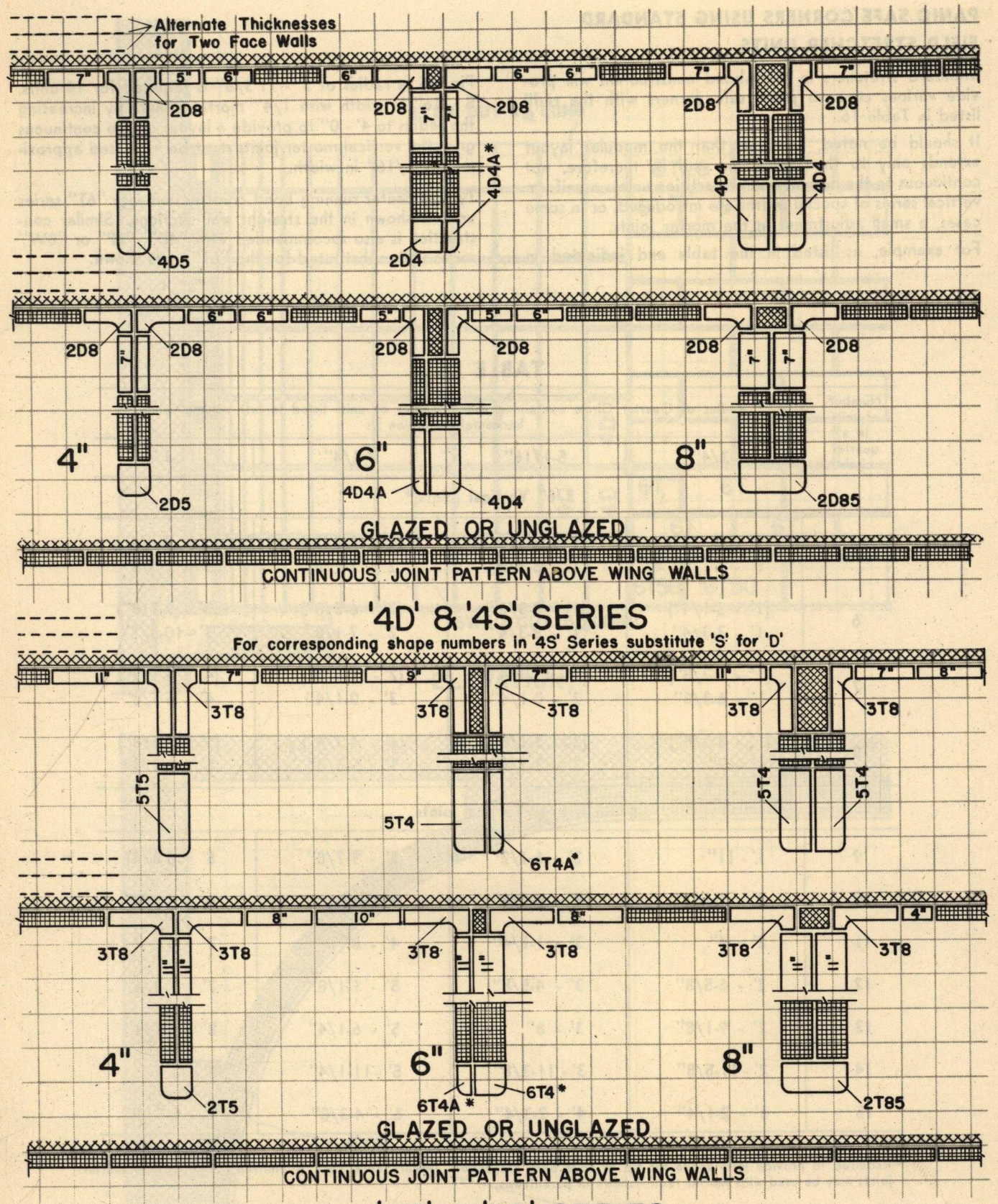

Alternate Thicknesses for Two Face Walls
7"
5"
6"
6"
6"
6"
7"
7"
2D8
2D8
2D8
2D8
2D8
4D4A*
4D4
4D4
4D5
2D4
6"
6"
5"
5"
6"
2D8
2D8
2D8
2D8
2D8
2D8
7"
7"
7"
4"
6"
8"
2D5
4D4A
4D4
2D85
GLAZED OR UNGLAZED
CONTINUOUS JOINT PATTERN ABOVE WING WALLS
'4D' & '4S' SERIES
For corresponding shape numbers in '4S' Series substitute 'S' for 'D'
11"
7"
9"
7"
11"
7"
8"
3T8
3T8
3T8
3T8
3T8
5T5
5T4
5T4
5T4
6T4A*
8"
10"
8"
4"
3T8
3T8
3T8
3T8
3T8
3T8
4"
6"
8"
2T5
6T4A*
6T4*
2T85
GLAZED OR UNGLAZED
CONTINUOUS JOINT PATTERN ABOVE WING WALLS
'6T' & '6P' SERIES
For corresponding shape numbers in '6P' Series substitute 'P' for 'T'

FIG. 44

Section 9. RADIAL CORNERS

Fig. 45

PANIC SAFE CORNERS USING STANDARD FIELD STRETCHER UNITS

Standard stretchers in block-bond construction will provide various concave panic safe corners with the radii listed in Table 16.

It should be noted, however, that the modular layout extends only to the radius line and is, therefore, not continuous to the normal wall or partition unless a uniform vertical series of special widths are introduced, or in some cases, a small adjustment in the mortar joints.

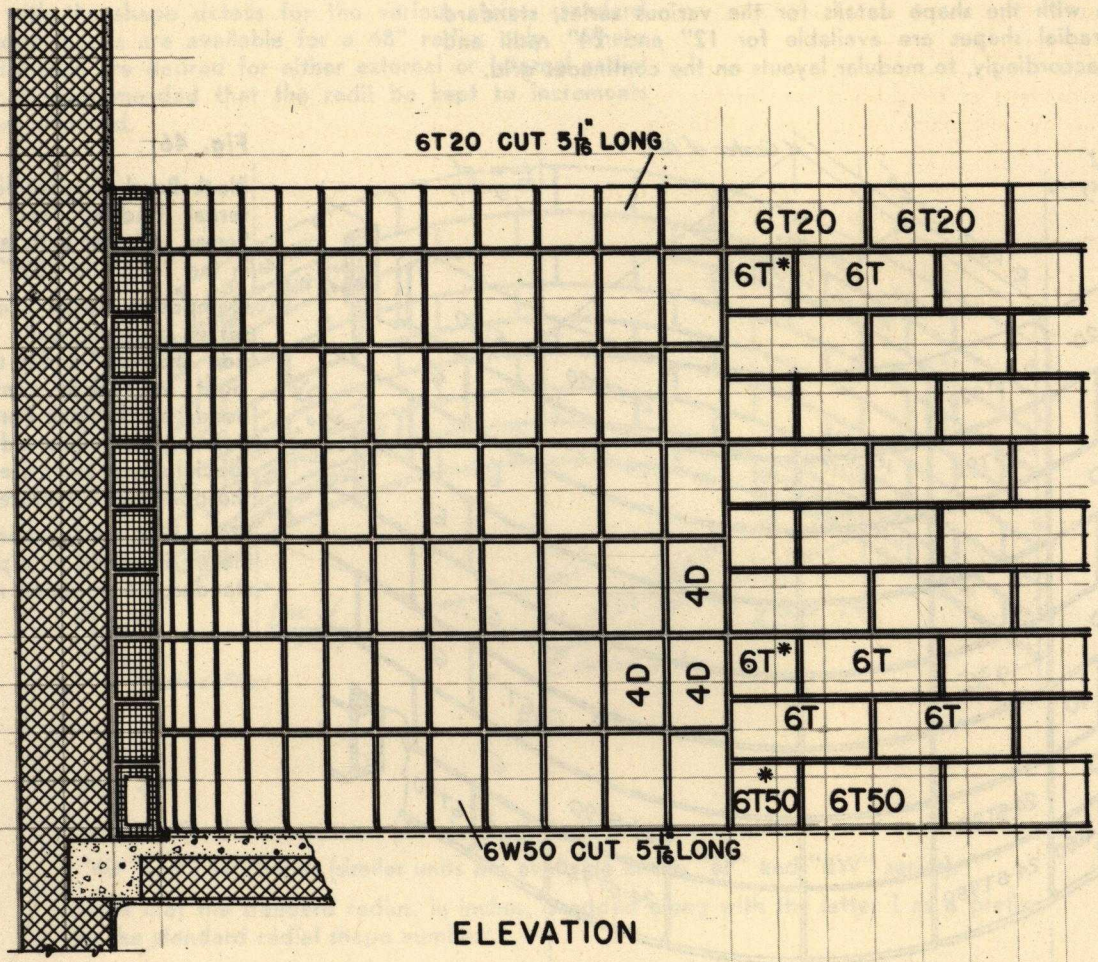
For example, as listed in the table and indicated in Fig. 45, a radius of 3' - 11 3/8" is required for 14 units, 5 1/16" in width with 1/4" mortar joints. By increasing the radius to 4' - 0" to provide a layout on the continuous grid, the vertical mortar joints must be increased approximately 1/16" in width.

Typical center running bond construction with "6T" series units is shown in the straight wall sections. Similar construction is also recommended with "4D", "6P" or "8W" series units substituted for the "6T" units shown.

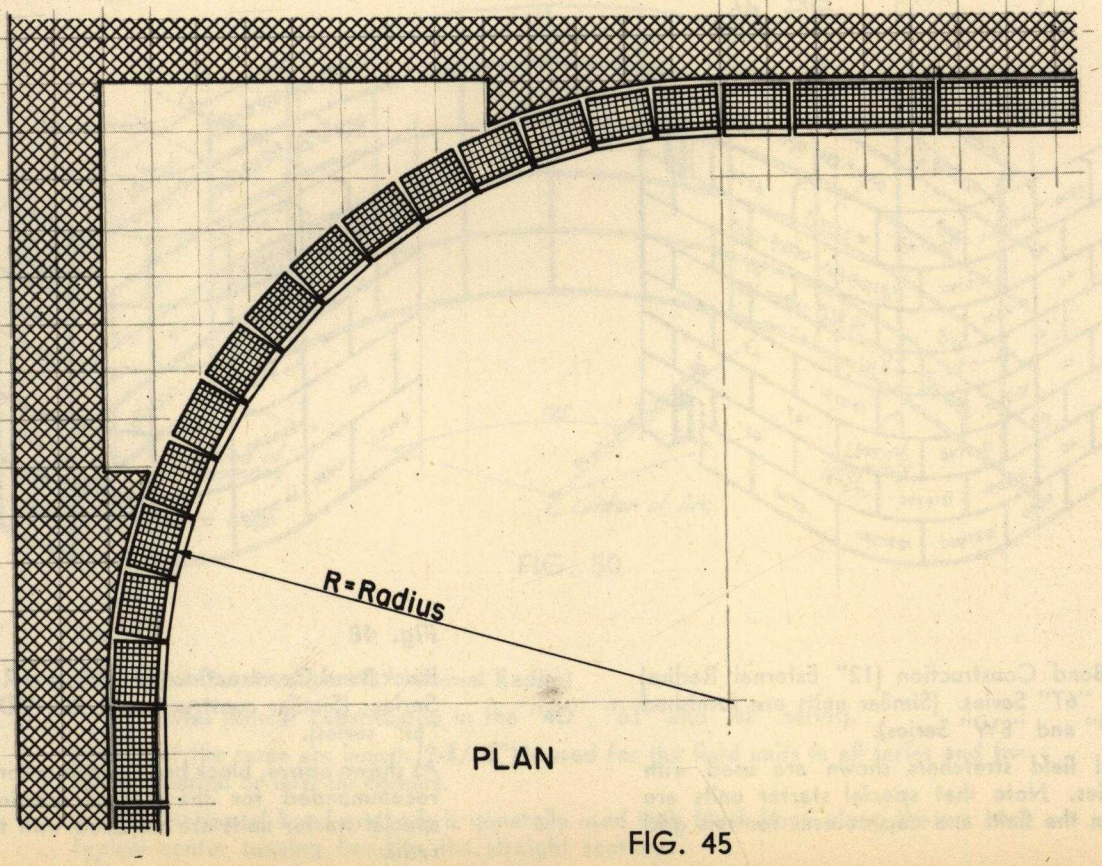
TABLE 16

Number of units in a quarter circle	Radius of Quarter Circle containing exact number of units listed in left column, when horizontal dimension is:			
	3-3/4"	5-1/16"	7-3/4"	11-3/4"
	3/8" Vertical joints *			
5	(1' - 0-3/4") 1' - 1-1/8"	(1' - 5") 1' - 5-3/8"	(2' - 1-1/2") 2' - 1-7/8"	(3' - 2-1/4") 3' - 2-5/8"
6	(1' - 3-1/4") 1' - 3-3/4"	(1' - 8-3/8") 1' - 8-3/4"	(2' - 6-5/8") 2' - 7-1/8"	(3' - 9-7/8") 3' - 10-3/8"
7	(1' - 5-7/8") 1' - 6-3/8"	(1' - 11-3/4") 2' - 0-1/4"	(2' - 11-5/8") 3' - 0-1/4"	(4' - 5-1/2") 4' - 6-1/8"
8	(1' - 8-3/8") 1' - 9"	(2' - 3-1/8") 2' - 3-3/4"	(3' - 4-3/4") 3' - 5-3/8"	(5' - 1-1/8") 5' - 1-3/4"
	1/4" Vertical joints			
9	1' - 11"	2' - 6-1/2"	3' - 9-7/8"	5' - 8-3/4"
10	2' - 1-1/2"	2' - 9-7/8"	4' - 3"	6' - 4-3/8"
11	2' - 4"	3' - 1-1/4"	4' - 8"	7' - 0"
12	2' - 6-5/8"	3' - 4-5/8"	5' - 1-1/8"	7' - 7-3/4"
13	2' - 9-1/8"	3' - 8"	5' - 6-1/4"	8' - 3-1/4"
14	2' - 11-5/8"	3' - 11-3/8"	5' - 11-1/4"	8' - 11"
15	3' - 2-1/4"	4' - 2-3/4"	6' - 4-3/8"	9' - 6-5/8"

* Required to provide joint space for tip of cove base projection. Where cove base is omitted, 1/4" vertical mortar joints may be used with shorter radii - shown in parenthesis.



ELEVATION



PLAN

FIG. 45

Section 9. RADIAL CORNERS

EXTERNAL RADIAL DETAILS

As shown with the shape details for the various series, standard external radial shapes are available for 12" and 24" radii and conform, accordingly, to modular layouts on the continuous grid.

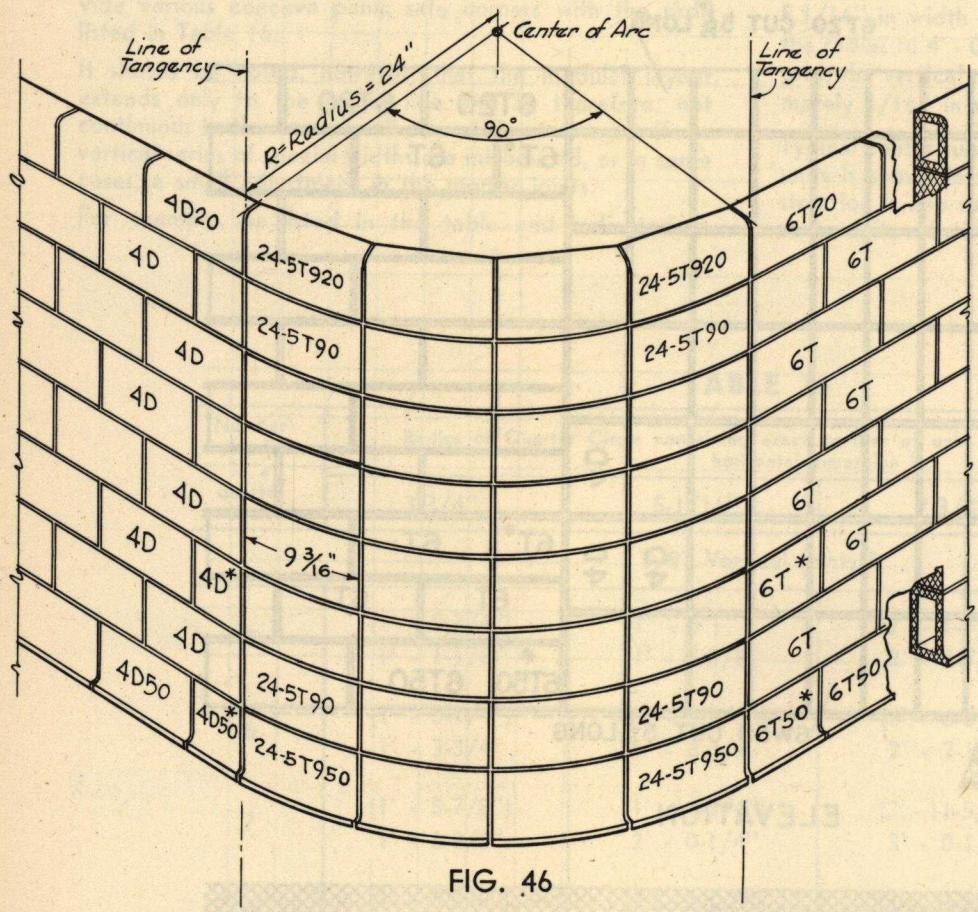


FIG. 46

Fig. 46

Block Bond Construction (24" External Radius) "4D" and "6T" Series. (Similar units are furnished in the "6P" and "8W" Series).

Composite detail showing "4D" series stretcher units on the left side and "6T" series units on the right in typical center running bond. With block bond construction used in the curved portion, no special starter units are required at the points of curvature.

Note that the desired radius, in inches, is added as a prefix to the standard radial shape numbers.

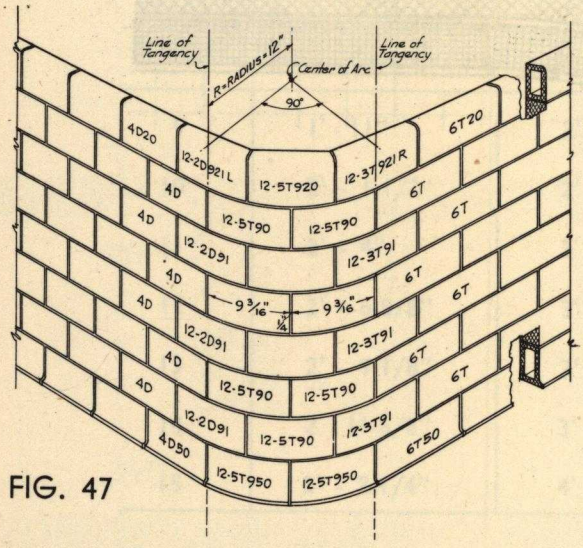


FIG. 47

Fig. 47

Running Bond Construction (12" External Radius) "4D" and "6T" Series. (Similar units are furnished in the "6P" and "8W" Series).

The radial field stretchers shown are used with either series. Note that special starter units are required in the field and cap courses for this grid position.

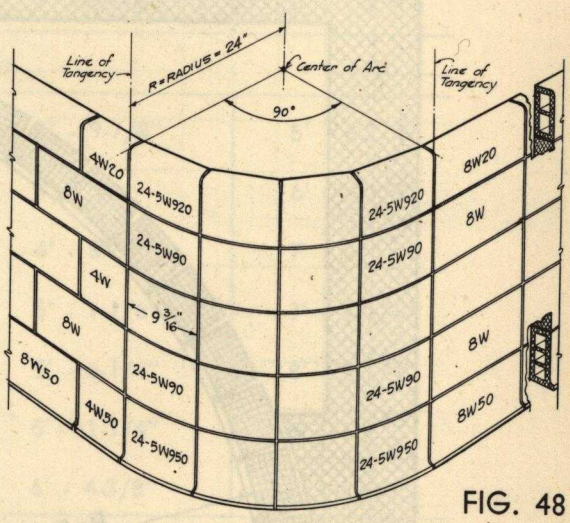


FIG. 48

Fig. 48

Block Bond Construction (24" External Radius) "8W" Series. (Similar construction in the "4D", "6T" and "6P" series).

As shown above, block bond construction is generally recommended for the curved portion since no special starter units are required with the standard radii.

Section 9. RADIAL CORNERS

INTERNAL RADIAL DETAILS

As noted with the shape details for the various series, standard internal radial shapes are available for a 48" radius only. Where other special radii are desired for either external or internal radial corners, it is recommended that the radii be kept to increments of 12" from standard.

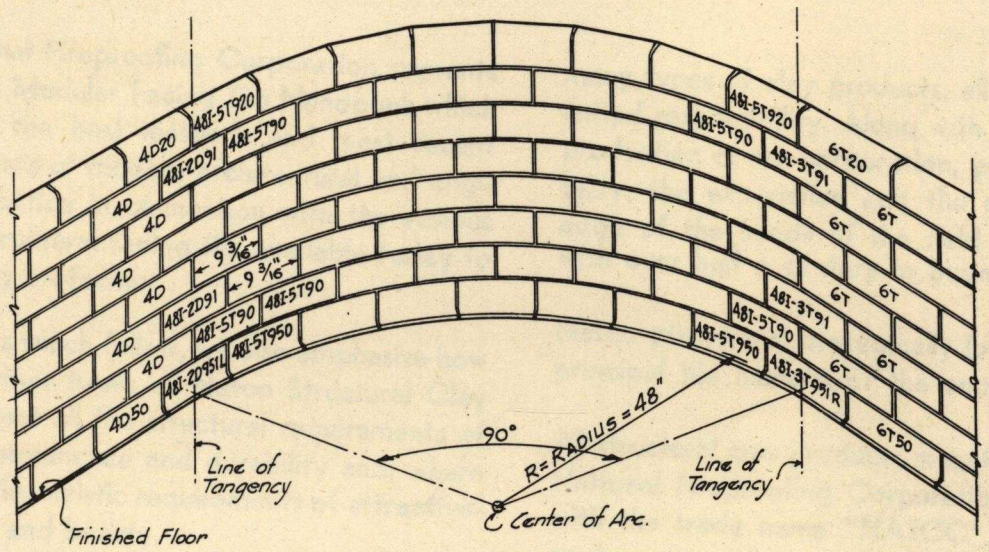


FIG. 49

Fig. 49

Running Bond Construction (48" Internal Radius)

"4D" and "6T" Series (similar units are available in the "6P" and "8W" series).

Note that the standard radius, in inches, is added along with the letter I as a prefix to the standard radial shape numbers.

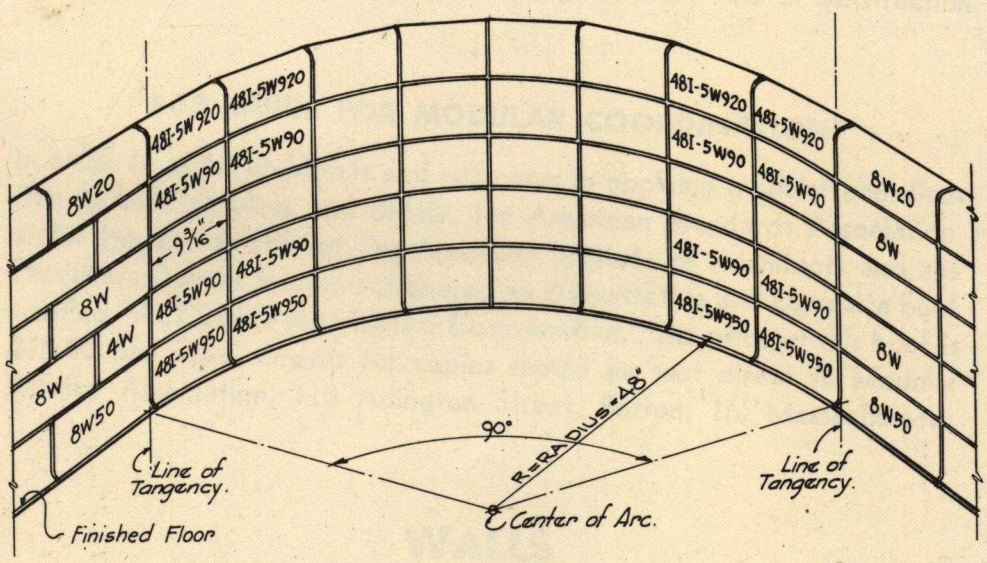


FIG. 50

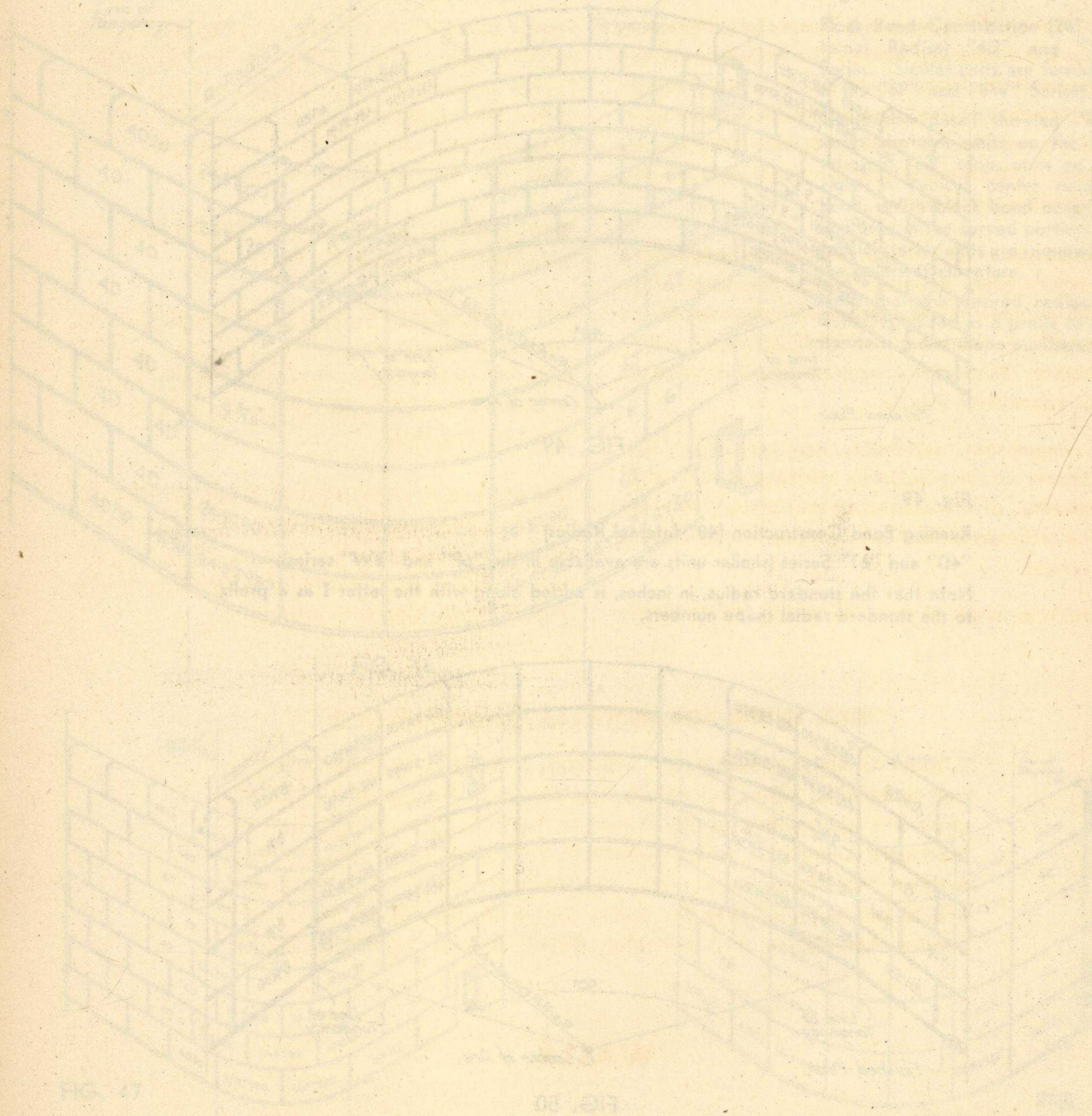
Fig. 50

Block Bond Construction (48" Internal Radius)

"8W" Series (similar construction in the "4D", "6T" and "6P" series).

Note that the same arc length (9-3/16") is used for the field units in all series and for either external or internal corners.

A combination of bond methods is generally used with block bond along the arc and typical center running bond in the straight sections.



SINCE 1889

NATCO

CLAY PRODUCTS

The National Fireproofing Corporation presents to you this Modular Facing Tile Handbook which represents the best methods and most recent developments of modern architectural and engineering practice in connection with the various types of structural facing tile available today to the building profession.

In the pages which follow, we also emphasize how perfectly other types of Natco Structural Clay Products meet all the structural requirements of strength, permanence and durability and, where necessary, the artistic requirements of attractiveness, charm and beauty.

It is hoped that architects, engineers and other members of the building profession will avail themselves of the assistance and service that the National Fireproofing Corporation is in a position to render.

Here is a single source of supply for a great many types of clay products, all backed by one united responsibility. Along with the tremendous production of the corporation, you have the stability, the experience and the practical knowledge of the needs of the field that has come with over half a century in business.

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All structural clay products manufactured by the National Fireproofing Corporation are branded with the trade name "NATCO". Look for this trademark on all structural clay tile or other clay products you buy.

The Corporation maintains an adequate and efficient engineering department. This department desires to cooperate and show you how you can use all Natco Clay Products to the best advantage in every kind of construction.

"A62 GUIDE FOR MODULAR COORDINATION"

In order to assist architects and engineers in applying modular coordination to building plans and details, the American Standards Association, under the sponsorship of the American Institute of Architects and the Producers Council, Inc. have prepared an authoritative and complete book entitled "A62 Guide for Modular Coordination." The price of this book is $10.00 per copy. Orders for copies should be sent direct to Modular Service Association, 110 Arlington Street, Boston, 16, Massachusetts.

WALLS

NATCO MODULAR UNGLAZED DRI-SPEEDWALL TILE—MANGANESE SPOT AND BUFF FINISHES

Nominal face size 5 1/3 x 12". Tile face size 5 1/16 x 11 3/4", for 8", 12" and greater wall thicknesses. Furnished in manganese spot mingled range light cream for exterior walls and attractive buff for interior walls.

Smooth built-in handles, licensed under Patent No. 1803158, save in labor and laying time. The Natco Dri-Wall feature insures dry walls by preventing moisture penetration through the walls. Colors and finishes are as enduring as the tile itself and in appearance resemble the finest face brick. Ideal for store, factory, mill, mine and railroad buildings and residential housing projects where a high quality finished appearance is essential. Write our nearest Natco branch office for full details.

NATCO MODULAR SALT GLAZED DRI-SPEEDWALL TILE

Nominal dimensions 8 x 5 1/3 x 12", tile dimensions 7 5/8 x 4 15/16 x 11 5/8". For exterior and interior walls of garages, auto service and filling stations, milk houses, barns, hog, poultry and all other kinds of farm buildings, dairy buildings and other types of industrial and commercial buildings where sanitation and ease of cleaning are of prime importance. By reason of the Speed Handle, licensed under Patent No. 1803158, walls of Salt Glazed Dri-Speedwall Tile are erected much more quickly and easily than are walls of ordinary masonry material. For complete information, get in touch with the nearest Natco branch sales office.

NATCO MODULAR RED SHALE TEX DRI-WALL TILE

Nominal dimensions 8 x 4 x 12", tile dimensions 7 5/8 x 3 5/8 x 11 5/8". Natco Modular Red Shale Tex Dri-Wall Tile are furnished in brick proportions in a design for easy handling and laying. Completed walls are insulated against rapid changes in temperature. The Natco Dri-Wall feature, combined with mortar joints prevent moisture from going through the walls. The smooth, built-in handles permit quick and easy laying with no cut fingers or abrasions. Natco Tex Dri-Wall Tile are especially desirable for homes, garages and industrial and commercial buildings of all kinds. For complete information write nearest Natco branch sales office.

NATCO MODULAR RED SHALE TEXTURED DRI-SPEEDWALL TILE

Furnished in two general sizes, Series 8512, nominal dimensions 8 x 5 1/3 x 12". Tile dimensions 7 3/4 x 5 1/16 x 11 3/4" and Series 8812 nominal dimensions 8 x 8 x 12", Tile dimensions 7 5/8 x 7 5/8 x 11 5/8". Natco Modular Red Shale Textured Dri-Speedwall Tile are designed for foundations and walls of residence, industrial, farm and commercial buildings of all kinds where appearance, durability, resistance to fire and decay, reasonable first cost and low maintenance, insurance and heating expenditures are important. Smooth built-in handles, licensed under Patent No. 1803158, save in labor expense and laying time. It will pay you to write to nearest Natco branch sales office for complete information.

NATCO MODULAR RAGGLE BLOCKS

Also known as Natco Flashing Tile. Furnished in nominal dimensions 4 x 5 1/3 x 12", tile dimensions, 3 5/8 x 5 x 11 5/8". When properly installed with correctly designed flashing, water cannot seep through or go down the wall and under the roofing. Corners, both external and internal, are formed by means of standard mitered sections. Write for descriptive literature.

NATCO SPEEDTILE (LOADBEARING)

Primarily designed for complete loadbearing walls, also furnished with recess for backing 12" and 16" brick walls with a continuous header every sixth course. The handle feature, licensed under Patent No. 1803158, enables the mason to pick up individual units with one hand and lay in the wall quickly and easily. Furnished for 8, 10 and 12 inch walls with standard face size 7 3/4 x 12".

NATCO NON-LOADBEARING TILE

For partitions and interior walls, Natco Non-Loadbearing Tile are light, strong and easily handled by bricklayers and resist the passage of

heat, cold and sound. They are furnished scored for plaster in 2, 3, 4, 6, 8, 10 and 12 inch thicknesses, with a standard 12 x 12" face.

Natco Unscored Non-Loadbearing Tile are made smooth on either one or two faces as desired. Ideal for warehouses, industrial plants, elevator shafts, and similar applications, where a painted or unfinished surface is required. Standard thicknesses are 3, 4, 6 and 8 inches with a standard 12 x 12 inch face.

NATCO SPEED-A-BACKER TILE FOR BACKING BRICK WALLS

Furnished in either unscored finish or scored for plaster, Natco Speed-A-Backer Tile are manufactured in 6, 8 and 12 inch thicknesses for use with brick facing in 10, 12 and 16 inch loadbearing masonry walls. Suitable closure tile are furnished for jambs and corners. By their use, a perfect mechanical bond every sixth course is secured. This construction has been used very extensively in housing, commercial and industrial projects of all kinds.

NATCO BAKUP TILE FOR BACKING BRICK WALLS

Made in two sizes, 8 x 5 x 12" for use in 13" walls and 4 x 5 x 12" for 9" walls, Natco Bakup Tile are bonded to the exterior brick wall by metal wall ties or by brick headers. In either size, one 5 x 12" face is unscored with other three sides scored. When a smooth interior is desired either to be left unfinished or for a painted surface, Natco Bakup Tile may be set with the unscored face on the inside. The 8 x 5 x 12" size displaces 6 brick and the 4 x 5 x 12" size 3 brick.

NATCO GLAZED SEGMENTILE

For circular storage bins. Units are 12 x 12 inch face size and are furnished in 6 and 8 inch wall thicknesses. Strong and enduring, storage bins of Natco Glazed Segmentile are free from repairs, are reasonable in first cost and will withstand heavy, sudden or continuous stresses or strains for many years to come. Standard for grain bins, ash bins, coal pockets, trickling filter tanks and as covering for gasoline tanks. Write for literature.

NATCO GLAZED SILO TILE

Furnished with units 12 x 12 inch face size for 6 inch wall thickness. Pleasing texture exterior face adds to appearance. Reasonable first cost, quickly and easily erected, the Natco Glazed Tile Silo preserves silage perfectly with no future upkeep expense. Never rusts, rots or sags, there are no hoops to tighten, no painting, no repairs. The Natco Double Shell feature with its three dead air blankets resists the passage of cold, heat and dampness. Write today for complete literature.

NATCO FACE AND COMMON BRICK

Made from shale clay, burned under scientific control, resulting in a brick of excellent structural qualities. They rate highly in compression and rupture tests and have moderately low absorption. Write nearest Natco office for literature today.

FLOORS

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The purpose of beam, girder and column covering is to place a protection against fire over the structural steel frame of buildings and to provide a surface on which to plaster. Speed and low cost of erection is assured in that no forms are required. With good cement mortar filling the space between the tile and the steel, the tile covering also permanently preserves the steel from rust and corrosion. Write for literature for complete information.

NATCOFLOR LONG SPAN FLOOR SYSTEM

A combination of special shaped Natco Structural Clay Tile, with 2 inch wide cement grout joists or ribs spaced 13 inches center to center between the tile. Furnished in 4, 5, 6, 7, 8, 9, 10 and 12" depths. Write for literature.

NATCO FLAT ARCH FLOORS

Provides all tile ceiling. Outstanding advantage is speed of construction regardless of temperature. Centers remain in place but one-tenth to one-fourth as long as required under concrete construction. Holes may be cut at any time and later easily patched for pipe or similar work.

NATCO COMBINATION FLOORS

Natco 12 x 12" structural clay tile of the proper thickness are used for fillers between the reinforced concrete joints. A minimum amount of steel reinforcing is required for ordinary loads. Tile are furnished in 4, 6, 8, 10 and 12 inch depths.

NATCO WIDE CENTER COMBINATION FLOORS

A special floor tile filler 20 or 16 inches in width in varying thicknesses with reinforced concrete joists. There is definite economy in the steel reinforcement as compared with other type floors. Furnished in 12" lengths for 4, 5, 6, 7, 8 and 10 inch depths.

Specific Information Furnished

Complete information as to engineering data and design of any of the floor systems outlined above will be gladly furnished on request.

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NATCO UNIFILTER BLOCKS

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for housing and safeguarding the wires and cables of telephone, telegraph and power companies.

NATCO DRAIN TILE

for farm and foundation wall drainage, etc.

NATCO LEOPOLD FILTER TILE

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SINCE 1889

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Natco Glazed Structural Facing Tile has an application somewhere in every building, everywhere in some buildings. It is ideal for the walls, partitions and wainscots in laboratories, schools, airports, restaurants, gymnasiums, corridors, lavatories, shower rooms, garages, abattoirs, breweries, distilleries, hotel kitchens and supply rooms, hospitals, power houses, auto service and filling stations, dairies, creameries, auditorium and recreational buildings, food products plants, post offices, meat packing plants, offices, chemical plants, natatoriums, waiting rooms and similar applications.

We shall be very glad to cooperate with you in every way in suggesting the most practical and economical ways to use Natco Glazed Structural Facing Tile on any job you have up now or in the future. This service is available not only at our general offices in Pittsburgh, but at any of our branch sales offices listed below.

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